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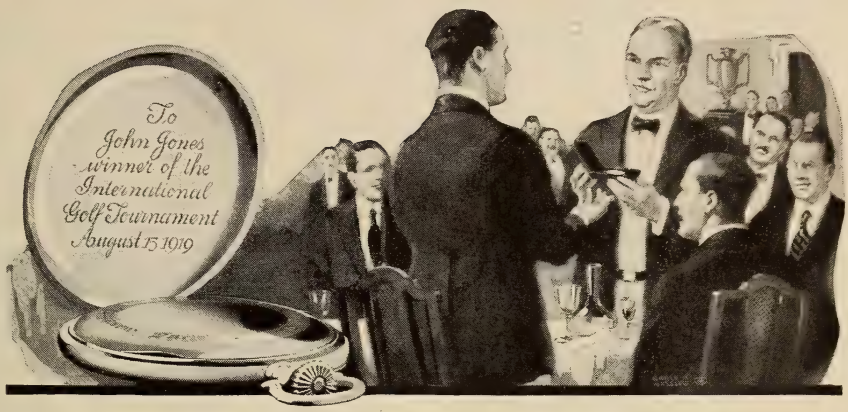

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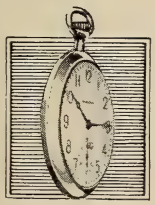

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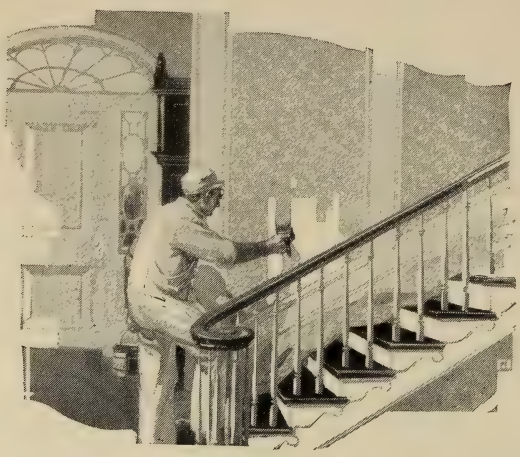

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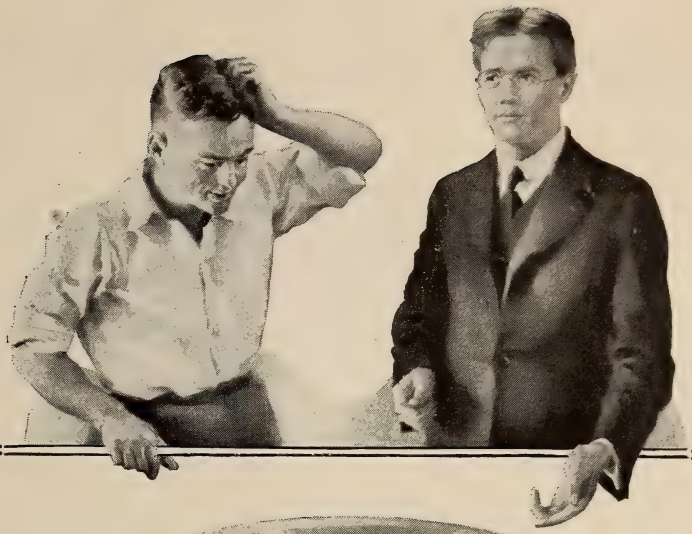

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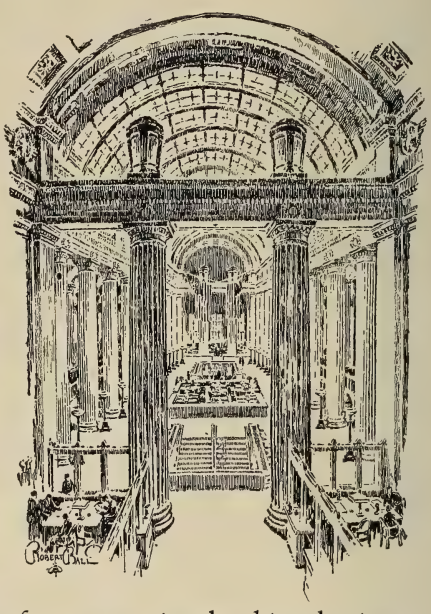

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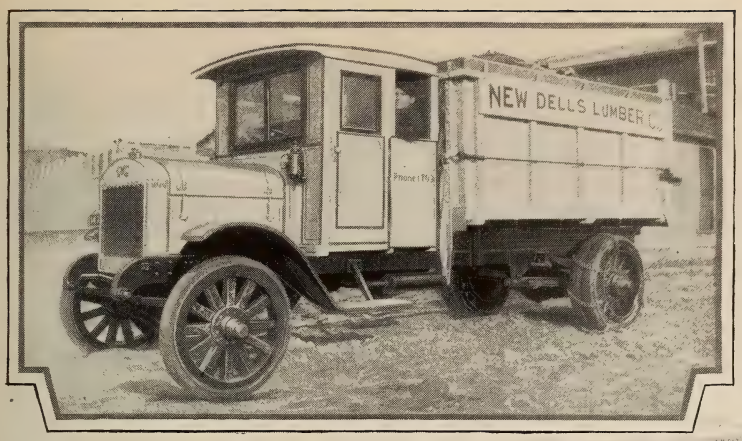
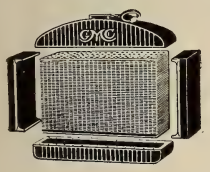


GMC TRUCKS



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GMC TRUCKS

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On the back of mother's fur cloak she has a warm pocket, in which Nee-wak rides safe and cozy even when the cold winds sting mother's face. In the house she takes off her coat with the fur hood and ties him to her back with soft strips of leather.

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Eskimo Life
Page 3

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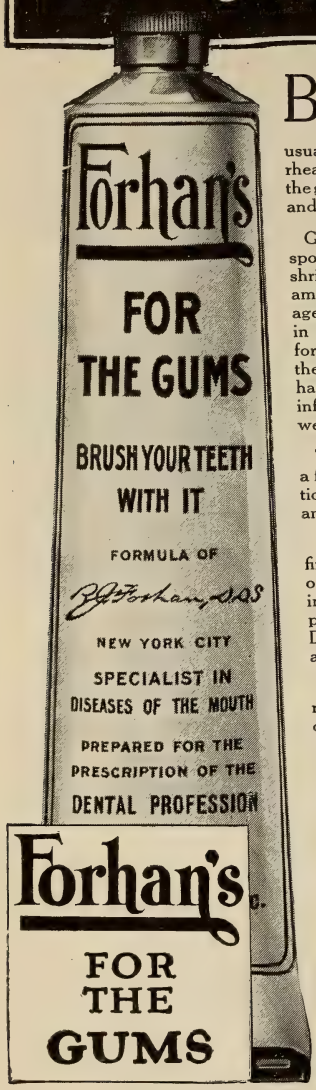
Be suspicious of tender gums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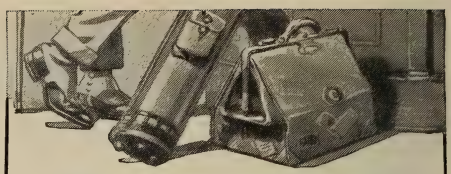

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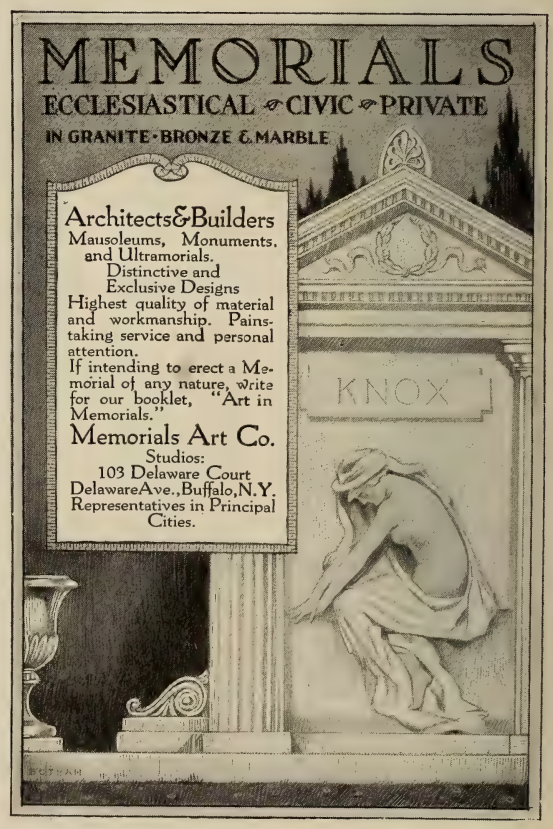
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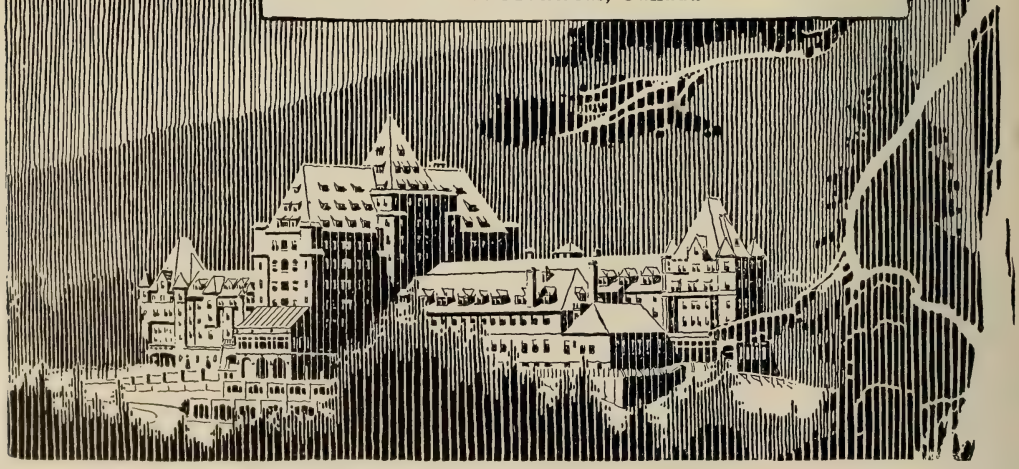

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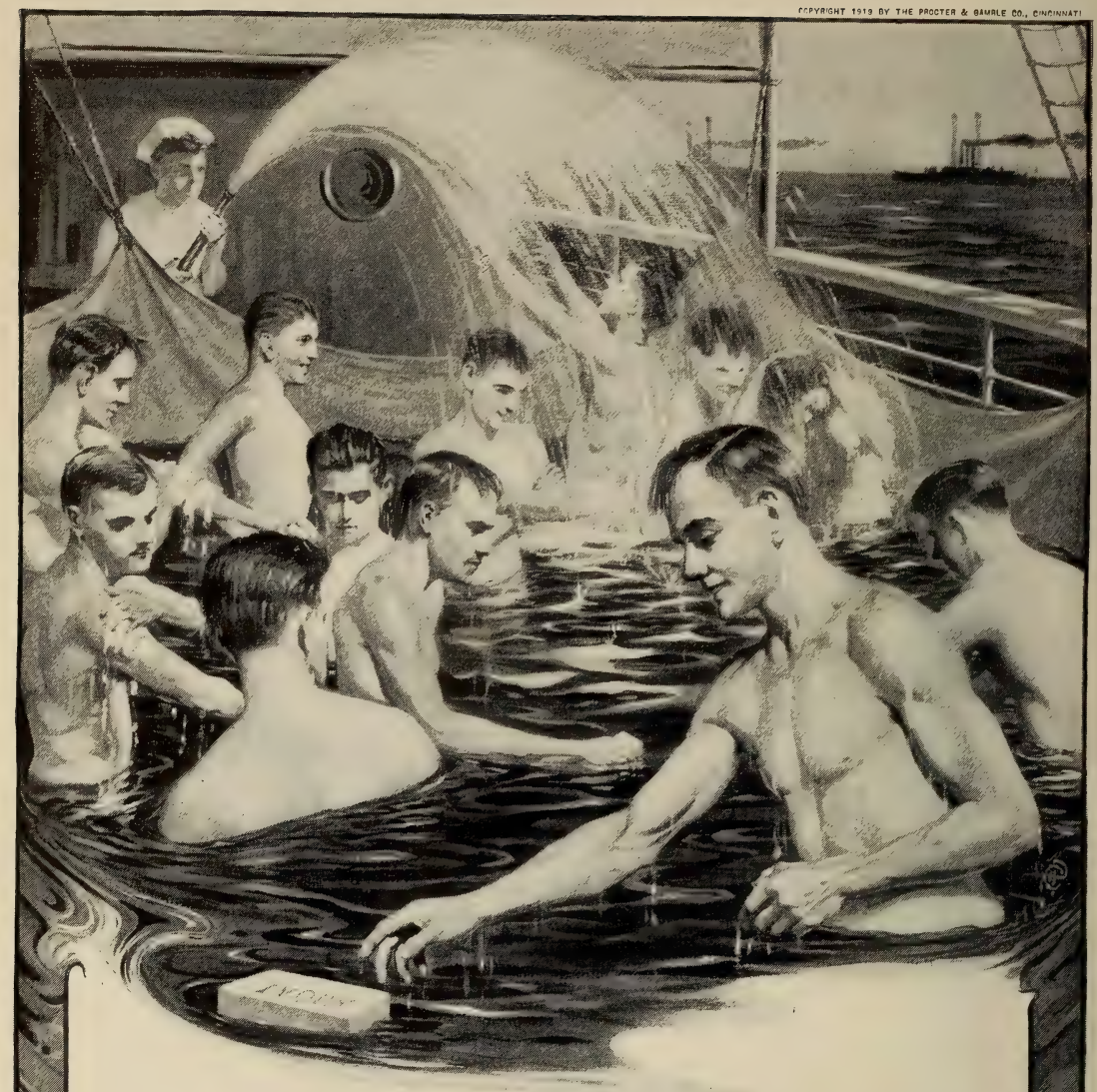

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VOL. XXXVI, No. 1 WASHINGTON JULY, 1919

THE NATIONAL GEOGRAPHIC MAGAZINE

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THE PROGRESSIVE WORLD STRUGGLE OF THE JEWS FOR CIVIL EQUALITY*

By William Howard Taft

Author, in the National Geographic Magazine, of "Some Recent Instances of National Altruism," "The Arbitration Treaties," "Washington: Its Beginning, Its Growth, and Its Future," "Great Britain's Bread Upon the Waters," "The Health and Morale of America's Citizen Army," and "The League of Nations"

WITHIN the limits of this article one can hope to give only the merest sketch of the history which the subject of the Jews involves.

I need not pause to emphasize the remarkable character of the Jewish people. They are unique in that for eighteen hundred years they have had no country, have been dispersed to the four quarters of the globe, and yet have retained their religion, their cohesion, their intellectual capacity, their loyalty to their race, and have, whenever there was any pretense of equality of opportunity for them, forged their way ahead into positions of prominence, influence, and power in business, professions, in philosophy, in art, in literature, and in government.

They have at the same time made loyal subjects or citizens of the countries in which they have lived whenever they have been accorded any reasonable protection of civil rights. No other people has ever been subjected to such continuous persecution in denial of opportunity to make a living and pursuit of happiness, in humiliating restriction upon their liberty, in exclusion from education, and indeed in actual physical cruelty and massacre.

* An address delivered by the ex-President, William Howard Taft, before the National Geographic Society at Washington, D. C.

THE DISPERSION OF THE JEWS BEGINS

During the three hundred years before Christ, the Jews were under Greek control and influence. Jerusalem was attacked many times and sacked, with the consequent dispersion into other countries of many of its people. They migrated into Syria, into Arabia, into Egypt, and became numerous and prominent in Alexandria. Indeed, there were, it is said, as many as a million Jews in Egypt before the Christian era.

When the Roman and the Parthian empires constituted the world, Jews were to be found in every commercial center, and in each there was a Jewish community and synagogue and a relationship maintained with Jerusalem.

The Jews flocked to Rome. Tiberius issued an order excluding them, but it was only enforced for a short time and they returned in great numbers. Although the Emperor Claudius announced his intention of banishing them again, they were so many that he gave it up.

In the first and second centuries after Christ, Nero, Vespasian, Titus, Trajan, and Hadrian found the Jews of Palestine

Photograph from R. S. Cresswell

JEWISH SCRIBES AT SALONIKI WRITING SACRED BOOKS ON SCROLLS, AS IN THE OLDEN DAYS

This work is very beautifully executed on parchment in strong black ink. The Oral Law, so called, of the Jews was codified by rabbis, after the expulsion from Jerusalem, into the Palestinian Talmud. The written law was the law of Moses, contained in the Pentateuch and known as the "Torah." The remainder of the Old Testament was divided into the "Prophets" and the "Writings" (see page 3).

unruly and undisposed to yield to their authority and campaigns were waged against them. Jerusalem was taken in the year 70 by Titus and the Temple destroyed. In the year 135 it was taken again by Hadrian's generals and the city destroyed.

THOUSANDS SENT IN BONDAGE TO SPAIN

Hadrian rebuilt the city and substituted a temple to Jupiter in the place of the temple to Jehovah. The Jews were expelled from the city and forbidden to come within sight of its walls. This brought about the great "diaspora," or second dispersion, which sent the people of Israel to the uttermost parts of the earth, some going voluntarily and others taken as prisoners. It is said that 80,000 prisoners were sent to Spain, where they found the Jewish communities which had moved on from Rome.

Photograph by Maynard Owen Williams

A SCENE IN PALESTINE, WHERE THE JEW HAS BEEN A STRANGER IN HIS OWN LAND FOR CENTURIES

After two millenniums of exile, the Jew may now return in safety to the land of his fathers and abide there with the assurance that his civil as well as his religious liberty will be safeguarded by civilized nations.

After the expulsion from Jerusalem, the scribes and Pharisees established a school and Sanhedrin at Jamnia, in Palestine, and somewhat later the center of church authority became Tiberias, on the Sea of Galilee, and for two hundred years an autonomous patriarchate under the Roman Empire flourished there. Here were institutions of learning in which the rabbis codified the traditions called the Oral Law into the Palestinian Talmud.

The seat of Jewish ecclesiastical authority then passed from Tiberias, in Palestine, to Babylonia, where great schools were established at Nehardea and Sura. In Babylonia three institutions of learning were conducted by the rabbis, who in the course of two hundred years framed the Babylonian Talmud.

The written law was the law of Moses, contained in the Pentateuch and known as the "Torah." The remainder of the Old Testament was divided into the "Prophets" and the "Writings," so called.

WITHOUT HOME OR COUNTRY

In the laws of Moses and the Talmud was to be found a collection of rules of conduct—physical, social, political, religious, moral, and philosophical—a strict and literal compliance with which became the life of the Jew. They offered a field for his study and mental occupation and discussion with his brethren which never ended. His duties thus prescribed were to be performed in the home and in the synagogue and in the academy, and these centers supplied to him what the fatherland was to others more fortunately situated.

The Torah and the Talmud established a direct relation to God on the part of each individual and an accountability for

A SCENE IN BEERSHEBA: THE ANCIENT HOME OF THE JEWS STRETCHES FROM THIS POINT NORTHWARD TO DAN

Many leaders of Jewish thought maintain that to reassemble the exiles into a restored Judea is impossible. Their hope lies in a *new* Judea which shall be "quick with the fires of youth, and which shall carry forward into the unknown world of the future that same warm humanity and sane idealism with which ancient Judea enriched antiquity."

every minute of his waking hours that absorbed his attention and his interest. With no home, no country, no kindly sympathy from any one but his own kind, he found his happiness within his own circle and in the refuge from sorrow which his life within the law gave him.

Their great historian says of the Jews: "In the vicissitudes of their fate for a great many centuries they were saved 'by their own inner life, pure home life, idealism of the synagogue, and belief in ultimate Messianic redemption' from utter demoralization and despair."

JEWS GRANTED FULL FREEDOM BY SARACENS

From Pumbeditha and Sura, in Babylonia, in the eleventh century, the seat of Jewish ecclesiastical authority seems to have passed to Spain, where, under the Saracens in Cordova and Toledo and Granada, the Jews were given full freedom and scope for their activities and for the practice of their religion, and for the further discussion of the Jewish faith and philosophy.

The two Talmuds are very voluminous, and in the centuries after their issue their legal contents were digested and condensed into more usable form for daily consultation and use. From time to time philosophers and leaders of Jewish thought appeared.

Philo of Alexandria, Maimonides of Spain, and Moses Mendelssohn were the three great lights, the first in the beginning of the Christian era, the second in the Middle Ages, and the third in the eighteenth century and late enough to furnish the type to Lessing for that wonderful character of Nathan der Weise.

False Messiahs appeared and misled many to their sorrow. Mysticism played its part and books promoting it were written, causing protest and controversy. Commentaries were published by some Jewish leaders of thought which were pronounced heretical by others. Spinoza, the great philosopher, was excommunicated by the Dutch rabbis.

But in spite of these differences, constantly during the seventeen centuries of gloom and woe, somewhere in the world was a religious center of Jewish authority to which Israel turned for hope and inspiration.

The strictly orthodox Jews have always adhered closely to the rabbinical law of the Talmud, but under the influence of Mendelssohn and the leadership of other liberals among his successors a division occurred, and there arose a liberal and reformed school among them, which grew in number as the conditions for their assimilation with the local environment became more favorable and they were relieved from the forced exclusiveness and misery of the Ghetto.

TWO JEWISH TONGUES

The speech of the Jews has had an interesting history. Hebrew, Aramaic, Greek, Arabic, and all European languages were from time to time spoken by them. Finally, in their wanderings, there grew up two hybrid mediums—one the Yiddish, or Jargon, and the other the Ladino.

The former, which has an extensive literature, is based on the medieval German, but is written in the Hebrew characters and is mixed with Hebrew and influenced by the vernacular. It is used by the Ashkenazim, or German Jews of northern and eastern Europe.

The latter, the Ladino, or Spaniol, is Spanish in its basis and mixed with Hebrew and Turkish. It is used by the Sephardim, or the Spanish Jews, and has been carried by them to Africa, Turkey, Bulgaria, Serbia, and Greece.

Recurring now to the history of the race after the second dispersion: In Rome, after the Christian era, Jews and Christians flocked in great numbers. In the chaos of skepticism, religions, and philosophies, there was a cult among some of the Romans that led them to embrace Judaism; but generally the Jews were exclusive, unexpansive, and contemptuous of other religions. They were especially hostile to the Christians, whom they regarded as traitors to their race for failing them in the wars of Vespasian and Titus, and whom they did not hesitate to accuse of many shortcomings in order to stir up Roman hostility against them.

THE LONG, DARK NIGHT OF JEWISH HISTORY

The Christians differed from the Jews in that they were most active mission-

RELIEF WHICH DECORATES THE ARCH OF TITUS, SHOWING THE CAPTIVE JEWS AND THE SACRED SEVEN-BRANCHED CANDLESTICK

The great Triumphal Arch of Titus, which crowns the summit of the Velia, was erected to commemorate the defeat of the Jews and the sack of Jerusalem in A. D. 70. It was not dedicated until eleven years later, during the reign of the destroyer's successor, Domitian. The reliefs of this arch are among the finest sculptured remains of ancient Rome. They were badly damaged during the Middle Ages, when the arch was used as a fort by the Frangipani (see page 2).

Photograph by Maynard Owen Williams

TOURISTS IN THE HOME LAND OF THE CHOSEN PEOPLE

No other region of equal size on the face of the earth has exercised so potent an influence on civilization as Palestine, the geographical cradle of the Children of Israel.

aries, and they thus brought down on their heads persecutions which were directed nominally against both Jews and Christians, but the severities of which the Jews were able to escape.

The result of this situation in Rome and elsewhere placed the Jews at a great disadvantage when the Roman Empire became Christian under Constantine, and from that time on, in one form or another, we find constant Christian persecution of the Jews.

In the long, dark Jewish night, after Christianity became the creed of the Roman emperors, down to the nineteenth century, there were only two or three countries and comparatively short periods in which the Jews enjoyed tolerance, prosperity, and power and were able to develop the genius of their race.

In the eighth century Charlemagne, correctly estimating their value as subjects of his empire, granted them tolerance in religion and encouraged them in the development of a trade which greatly helped his empire and made many of them rich merchants. The fact that there were Jewish communities in every great commercial center, even of the most distant parts, gave them a marked facility in conducting international trade. Charlemagne's son and successor, Louis the Pious, continued his father's wise and kindly treatment of them.

THE JEWS FLOURISHED IN SPAIN

A little earlier than Charlemagne the Moslem invasion of Spain in 711 established the Crescent in the peninsula Arabian and African Jews, who, after the persecution of them by Mahomet and Omar, had ingratiated themselves with their successors and had been given opportunity for education and development, accompanied the Saracens into Spain and there met their brethren, who had been greatly abused by the Visigoths and who were only too glad to unite in aiding the following of the Prophet to establish a kingdom.

There they developed trade, poetry, philosophy, science, and literature and

Photograph by American Colony, Jerusalem

HEBRON, A GEOGRAPHICAL HOLY OF HOLIES OF THE JEWISH RACE: PALESTINE

The Arabic name for this city of 22,000 inhabitants is El-Khalil, referring to the fact that it is "the city of Abraham, the friend of God." An early tradition gives this as the birthplace of Adam. Abraham is supposed to have pitched his tents here. It was David's capital for more than seven years, and it was the headquarters of the rebellious Absalom.

art. They became ministers of the government and its representatives abroad. The kindly Saracenic soil for their growth gave a full development to the race, and the Spanish, or Sephardic, Jews were fine specimens of physical and intellectual manhood. They became in a way the aristocracy of the house of Israel.

This favorable condition continued until the reconquest of Spain by the Christians began, and lasted in lessening degree to the expulsion of the Moors from Granada, in the fifteenth century.

Meantime every great upheaval seemed to increase Jewish persecution and Jewish misery.

The First Crusade, in 1096, which developed such wonderful religious spirit in the middle and upper classes, led the scum and the rabble to a persecution of the Jews. This recurred in the Second Crusade, in 1146.

MASSACRES OF THE JEWS UNDER THE PLANTAGENETS

A cruel massacre of the Jews occurred in 1189 in England, at the time of the coronation of Richard I, although the king favored them and they had acquired a hold in England to such an extent that there had been established a Jewish exchequer, where Jews had to register all their transactions and through which the financial troubles of the Plantagenets were greatly remedied by Jewish gold. They were, however, expelled in 1290 from England by Edward I, it is said at the instance of the Queen Mother Eleanor, whose religious intolerance could not brook their presence.

The Fourth Lateran Council, under Innocent III, among many anti-Jewish measures, required Jews to wear a dress or badge indicating their race. Soon after in all the cities of Europe they were compelled to live in a particular quarter surrounded by walls and were locked in at night. Hemmed in and congested in these ghettos, the Jewry of Europe lived out their painful lives until the middle of the eighteenth century.

St. Louis of France expelled the Jews in 1254, treated them badly, and then invited them back. Philip IV expelled them, and nine years afterwards, in 1315, his successor, Louis X, recalled them. They were finally expelled by Charles VI in 1394.

ACCUSED OF BLACK-DEATH SORCERY

In 1348 and 1349 there came the plague of the "black death" all over Europe. Probably because of the hygienic effect of the Mosaic and Talmudic law, to which the Jews conformed with rigidity, they escaped the ravages of the epidemic.

This was noted among the people, and at once the report spread that the plague had come from wells poisoned by the Jews, and another series of massacres of these poor people followed everywhere. During the plague, Pope Clement VI issued two bulls in an attempt to protect the Jews.

The Popes in the course of the centuries, however, issued many bulls against the Jews. The bulls were enforced with much greater severity in other countries than by the Popes themselves, who in actual administration often exhibited much leniency toward this unfortunate race. Canon law had forbidden the taking of interest or usury by Christians; but this did not apply to the Jews, and as the Jews had the money, they did the lending.

They thus became objects of interest to the kings of the various countries who had to borrow money, and they were made private servants of the monarchs, *servi camaræ,* a position of apparent privilege which, however, in the end only subjected the Jews to greater persecution.

CHARGED WITH HUMAN SACRIFICE

An uncertain tolerance was the only relief from constant persecution, which was their usual condition after the crusades and the black plague. Every excuse for attacking them was seized. Huss in Bohemia proclaimed his adherence to the teachings of Wycliffe in 1420. He was persecuted by the church—but so, too, were the Jews—for his agitation among Christians, with which they had naught to do.

In 1481 the Inquisition was set on foot in Spain, and in 1492, after Granada fell, the Jews were expelled. They were driven into northern Africa, into Turkey, and into Italy.

Whenever bitterness or prejudice or private motive prompted hostility to the Jews, a common form of accusation was that of murder, and offering of a sacrifice of a Gentile child in their religious ceremonies was charged. A trial was had and, whether conviction followed or not, persecutions ran riot.

This method of attack has, as we know, continued down to the present generation in some countries. Lecky, in his "History of Morals in Europe," points out that this form of charge was made against a great many different sects in pagan Rome—against the Christians as well as others. It has survived only against the Jews.

POLAND ONCE A LAND OF REFUGE

The effect of the crusades, the black plague, the Inquisition in Spain, the Huss persecutions in Bohemia, and the annual massacres in Austria in the time of Rudolph of Hapsburg, was to drive the Jews to seek refuge in a country where life was possible. The country toward which they turned their eyes was Poland.

Poland was consolidated under Casimir III, the Great, in the fourteenth century, and was made still greater by the marriage of his grand-niece and heiress to Yaguello, the Grand Duke of Lithuania, who thereupon became the King of Poland and the founder of a dynasty which ruled from the latter part of the fourteenth to the latter part of the sixteenth century.

At the height of its expansion the Polish monarchy reached from the Baltic to the Black Sea and covered an area which down to this day harbors the great bulk of the Jewish population of Europe. If we leave out Prussian Poland and Austrian Galicia, the Russian present Jewish pale of settlement nearly coincides with the boundaries of this ancient Poland.

A "JEWISH JUDGE" APPOINTED

In 1334 Cassimir the Great of Poland confirmed a charter of general privileges to the Jews which had originally been given by a predecessor in 1264. The charter insured the economic progress of the Jews and gave guaranties of their personal and religious security.

They were exempted from the jurisdiction of the ecclesiastical as well as the municipal law courts and a "Jewish judge," so called, was appointed to act in their cases, significant of the abuses to which they had been subjected.

Cassimir's liberality attracted Jews from every quarter of Europe and greatly increased their number in Poland.

After the Yaguello dynasty the power passed from the kings to the Polish nobility, or Shlakta, and the protection to the Jews grew less and less. The burghers were hostile to them because of their competition, and the nobility, while using them as agents to conduct their estates. were arbitrary, cruel, and tyrannical.

Chaos ensued and the condition of the Jews grew worse. They were forbidden to hold land. The nobility manufactured the liquor, and they were willing and anxious to have the Jews sell it, who thus, for lack of other occupation, became the innkeepers, the purveyors in the demoralizing liquor business.

The reduction and elimination of the Polish Kingdom during the seventeenth and eighteenth centuries transferred the bulk of the Jews of the world to the jurisdiction of Russia, Germany, and Austria. Poland lost many of its provinces to Russia before the three formal partitions in the eighteenth century.

Except in the part of her Empire which Russia acquired from Poland, Russia never had and has not now but a very few Jews. Her eager acquisition of her large share of Poland, however, placed nearly half of the Jews of the world within her jurisdiction. They had not sought it.

THE FLIGHT TO HOLLAND

The adoption of the Inquisition by Spain in the fourteenth and fifteenth centuries led many of the Spanish Jews to become baptized into the Catholic Church and to go through the form of Christian worship, retaining secret allegiance to Judaism and observing its law as far as possible. They were called Maranos. This was a notable exception to the usual tenacity of the Jews in not only retaining their faith, but in avowing it under the most terrible ordeals.

The Maranos did not escape persecution by the Inquisition, however, and

ENTRANCE TO THE MOSQUE OF HEBRON, BUILT BY THE CRUSADERS IN THE TWELFTH CENTURY

This ancient edifice, sacred alike to Jew, Gentile, and Mohammedan, is supposed to stand over the Cave of Machpelah, purchased from Ephron the Hittite by Abraham as a family burial place. Besides the patriarch and his wife Sarah, Isaac and Rebecca, Jacob and Leah are believed to have been buried here.

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A GLIMPSE OF GRANADA FROM THE SUMMER PALACE OF THE MOORS

In few periods of their history since the Dispersion have the wandering Jews found such cities of refuge as those of Spain in the days of the Moors. There they developed poetry, science, literature, and art. They became ministers of the government and its representatives abroad (see pages 5 and 7).

they fled, many of them, to Holland, where they engaged in trade and where, after a time, they resumed their relations to the synagogue.

Their skill in international trade and familiarity with colonial matters soon gave them wealth and standing among the Dutch. Charles II while in exile dealt with these Jews. At the same time, one of them visited Cromwell in 1655 and pressed upon him the wisdom of allowing the Jews to return to England, whence they had long before been expelled.

Cromwell made no formal agreement, but intimated that he would tolerate their return, and they went back.

Charles found them there when he was restored, and while they were not politically emancipated in England completely until 1850, they suffered no oppression and were able to develop their faculties for business and finance and were well treated and became a strong and loyal supporting element of the British Crown.

SAFETY IN AMERICA

When the Constitution of the United States was adopted, Jews, of course, were treated on a full political equality. Some of them were of the greatest aid to this country in the Revolution. While there were religious qualifications for suffrage in several of the States, they rapidly disappeared, and in this country, at least since the adoption of the Constitution, in 1789, Jews have had complete emancipation and perfect legal equality of opportunity.

When the French Revolution came on, in 1789, Mirabeau and Abbé Grégoire led the movement for the emancipation of the Jews; and while they met resistance, they were successful.

Napoleon did not disturb this condition. On the contrary, he extended it and gave equality of civil rights to the Jews in many countries over which he exercised power, though he was the author of at least one restrictive ordinance affecting them. France may, therefore, be counted as the next nation after the United States to give the Jews complete legal equality.

Louis XVIII, who succeeded Napoleon, continued this freedom for them, though in actual administration, under the influence of ecclesiastics, there was some discrimination against the Jews. When Louis Philippe succeeded, in 1830, his Minister of Education proposed a bill which became a law, providing for the same payment of rabbis and for synagogues out of the public treasury as in the case of the Christian clergymen and churches.

In Holland the Jews were given political and civil equality in 1796. In the British colonies they enjoyed it from 1740, much earlier than they did in the mother country.

PLEADING FOR RELIEF AFTER NAPOLEON'S FALL

In Prussia the Jews had been given greater civil and political rights in 1812, and in Mecklenburg and in Baden. When Prussia united with England, Austria, and Russia to put down Napoleon, the young Jews of Germany played their part with vigor and effect and made a valuable addition to the Prussian and German forces.

After Napoleon was beaten, in 1814, the Holy Alliance, with Hardenberg and Metternich as leaders, met at Vienna, and the Jewish communities from the Hanse towns and Frankfort appealed for relief from their governments. So bitter, however, was the resistance of the free towns and of Frankfort that only a friendly resolution was passed and inserted in the German constitution, but it had no moral binding effect. The Rothschilds were nearly driven from Frankfort because of the bitterness of the Frankfort Senate and their desire not to grant equal rights to the Jews, although the Jews had paid half a million dollars as a consideration for such a grant.

About this time a professor named Rühs, of the University of Berlin, began propaganda against the Jews and aroused a bitter feeling. The truth is, that Protestant Germany has never been liberal in this regard.

EQUALITY OF OPPORTUNITY PRACTICALLY GRANTED

The popular movements all over Europe in 1848, however, on the Continent brought not only equality of opportunity

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THE GATE OF JUSTICE IN GRANADA: A PHRASE SIGNIFICANT TO SPANISH JEWS

When the Saracens carried the Crescent to the Iberian Peninsula at the beginning of the eighth century, they were accompanied by the Jews who had ingratiated themselves with the followers of Mahomet.

and religious freedom to the Jews, but brought into the various parliaments a number of the leading Jews, and from that time on they have had little real trouble with the law in Austria, Germany, France, Holland, and England.

In Spain the Inquisition was revoked in 1834, and the Jews have since been invited back. By the Congress of Berlin, in 1878, to which I shall refer more in detail later, the Jews secured political and civil equality in Bulgaria and Serbia. Turkey had already granted it to them.

On the whole, then, at the present time, the sons of Israel have little to complain of in statutory law except in Rumania and Russia. This is not to say that they do not encounter social prejudice in all countries, which in some countries has grown into bitter Anti-Semitism and popular agitation against them.

Prejudice cannot be banished by law. It can only fade out as conditions producing it change. It of course affects the happiness and comfort of them against whom it is directed; but it does not limit their useful activities nor the achievements of great success.

WHY ARE THE JEWS PERSECUTED?

What are the reasons for this almost constant persecution of the Jews from the fourth century to the nineteenth? I regret to say that it must be mainly attributed to the religious intolerance of the Christians. Other causes may be pointed out in the characteristics of the race which mistreatment and self-protection either developed or increased and hardened. But, in the last analysis, the initial cause was in religious prejudice.

We find this prejudice in the hostility of Constantine after his conversion; we find it in the bulls of the Popes, beginning in the fourth century and continuing through the Middle Ages to the Council of Trent, in 1563; we find it in the course of St. Louis of France; we find it in the religious frenzy of Queen Eleanor of England, of Elizabeth of Russia, and Maria Theresa of Austria; we find it in the Inquisition in Spain; we find it in the words of Martin Luther against them.

Luther said: "Why should the Jews complain of their captivity among us? We Christians suffered persecution and criticism at their hands for nearly three hundred years, so that we might complain that they took us captives and killed us, and to this very day we know not what devil brought them into our land. We did not bring them from Jerusalem. Besides that, no one keeps them. The country and the roads are open to them. Let them return to their own land. We will gladly give them presents if we can be rid of them, for they are a heavy burden upon us, a plague, a pestilence, a sore trial."

FORCED TO MAINTAIN THEIR EXCLUSIVENESS

We find the same spirit of religious persecution in the reintroduction by Pius VII of the Inquisition against the Jews and his ordinance that the Jews should forfeit the freedom enjoyed under the first Napoleon's rule in Rome and forsake their beautiful houses and return to the Ghetto; and we find it today in the attitude of the Russian Greek Church and the severe methods adopted to secure the baptism of the Jews.

The persecutions which this religious prejudice has engendered have stimulated the Jews in self-protection to maintain their exclusiveness, to continue their religious life and rigid adherence to their ceremonials, and to avoid assimilation with such an uncomfortable and hostile environment.

It increased their intense activity, their cunning in business, in order that they might live at all against such opposition, and it produced in them the traits that are now made the basis for denouncing them.

In 1877, Russia declared war against Turkey because of the atrocities committed by the Turks against the Christian peoples in the Balkans, and ultimately won the war. She made the treaty of San Stephano with Turkey, and then the great Powers insisted that there must be a congress to revise that treaty.

RELIGIOUS AND CIVIL LIBERTY URGED

The congress was called at Berlin in 1878 and under it were established the separate governments of Serbia, Bulgaria, and Rumania, who thus really owed their freedom to Russia.

RUSSIAN HEBREW ORPHANS ARRIVING IN NEW YORK: THEIR PARENTS WERE SLAIN IN KISHINEFF POGROMS

Before the world war upset all census figures, it was estimated that there were more than 15,000,000 Jews. Of these, 6,000,000 were to be found in the ten provinces of Russian Poland and in the fifteen provinces called the Pale of Settlement, in Russia proper

France, England, and Germany insisted that the new governments to be constituted should embody in their constitutions a declaration in favor of religious and civil equality for all domiciled within their jurisdiction.

This was not favored by Russia and was very bitterly opposed by Rumanians. Nevertheless, on the approval of Prince Bismarck, who presided in the congress, the treaty required that, as a condition of recognition by European governments, the constitution of Rumania should contain declarations and guaranties of civil and religious liberty and equality for the Jews, and Russia signed the treaty.

The Rumanian authorities deliberately framed a plan by which to evade the requirement of the treaty. They provided in their constitution, Article VII:

"The difference of religious creeds and conditions does not constitute in Rumania an obstacle to the acquirement of civil and political rights and their exercise."

EVADING THE TREATY IN RUMANIA

They then provided for naturalization and enacted that naturalization could only be granted by a law and individually. It was held by their government that Jews were aliens, although they had been living in Rumania for hundreds of years and had been subject to draft into the Rumanian army and had served as soldiers. In this way they avoided the effect of the constitution upon Jews, and their statesmen openly prided themselves on their acuteness.

By adopting the constitution to which I have referred, the Rumanians procured the recognition of European countries. Since then they have heckled and harried the Jews by restrictions upon their livelihoods, by refusing admission to the elementary public schools of more than 5½ per cent of their number, and in secondary schools of more than 7½ per cent, and in many other ways.

Although this is in direct violation of the Treaty of Berlin, the signatories to the treaty have not thought it best to intervene.

Bulgaria and Serbia complied with their obligations.

THE PALE OF THE SETTLEMENT

The law which required the Jews in Russia to live in the cities of the Pale of Settlement produced a great congestion. They were forbidden to engage in so many trades and callings that their means of livelihood was most limited. They had no political rights and were thus kept excluded from government employ.

They were denied secondary and university education except to the extent of a very small per cent of their number, and they were so hemmed about with police restrictions as to subject them to oppressive blackmail. The result has been that the great majority of them are ignorant, and even before the war at least a third of them were in direst misery and destitution.

There are in the world over fifteen million Jews. Of these, six millions are to be found in the ten provinces of Russian Poland and the fifteen provinces called "the Pale of Settlement." There are upward of 2,250,000 Jews in Austria and Hungary. There are 615,000 in Germany. There are 270,000 Jews in Great Britain, 100,000 in France, 45,000 in Italy, half a million in Asia, 250,000 in Rumania, and there are 3,300,000 in the United States, of whom a million or more live in the city of New York.

The Jews in the United States, down to 1880, did not exceed a quarter of a million, but since the oppression, pogroms, and massacres in Rumania and in Russia immigration has increased to the figures given (see also page 20).

THE GREAT JEWISH PROBLEM OF TODAY

As I have said, in all parts of Europe and America, except Russia and Rumania, legal discrimination against the Jews has largely ceased and civil equality is accorded them. The present great problem, therefore, is to secure civil equality for them in Russia and Rumania. How is the present condition in those countries explained?

Prince Gortchakoff in the Berlin Congress described the Russian and Rumanian Jews as a great scourge upon

IN FRANKFORT-ON-THE-MAIN, THE ANCESTRAL CITY OF THE ROTHSCHILDS, THE MOST FAMOUS FAMILY OF FINANCIERS IN THE WORLD

Mayer Anselm Bauer, the founder of this family of Jews, was the son of a small merchant. The boy became a money-lender instead of a rabbi, as had been planned, and from the counter of the sign of the "Red Shield" (Rothschild) there developed a financial institution which became more powerful during the nineteenth century than any monarch in Europe. It was Rothschild's gold which enabled Britain to carry on the Napoleonic wars, and it is said that the English Rothschild was present at the Battle of Waterloo to witness the triumph of Wellington.

any people. Bismarck's answer was that the policy of restriction had given them the character which is now made the basis for complaints against them.

Mirabeau in the French Assembly said, in answer to a similar charge: "If you wish the Jews to become better men and useful citizens, then banish every humiliating restriction, open to them every avenue of gaining a livelihood. Instead of forbidding them agriculture, handicrafts, and the mechanical arts, encourage them to devote themselves to these occupations."

RUSSIA'S PLAINT AGAINST THE JEWS

It is probably true that the Russian Jews do devote themselves to trading in money, and that the Russian moujik is subject to abuse in this respect of which the Jews take advantage, but it must be borne in mind that the restrictions upon the Jews as to livelihood have been and are such as to drive them into money-lending. Indeed, this cause dates from the middle ages, when, as already said, canon law forbade among Christians the lending of money on interest and left that business open for the Jews, who perforce became the money-lenders of Europe.

The few avenues of employment for Jews forced them into the conduct of inns and the selling of liquor. This, as I have pointed out, was a heritage from the Polish nobility.

Even if the charge made against the Russian Jews of fraud and trickery has

foundation, it is not to be wondered at, when man's hand is against them, when they are desperate in their efforts to live, when they have a faculty in trade born of the severest necessity. The objection to them that they work together in the interest of each other may well be true. When general society is against them all, they naturally stand together for self-protection and for self-support.

THEY MAKE GOOD SOLDIERS

One can hardly expect that they should feel entirely grateful to a government which makes life so hard for them, or that the desire to serve in the army should be strong in them. And yet the reports from the World War indicate that they have made good soldiers, and the history of the Jews in all countries in which they have settled has been that they have rallied to the support of the government under which they lived.

Their patriarch, Samuel of Nehardea, sixteen centuries ago laid down the rule: "The law of the government is the law"; and in the eighteen or nineteen centuries in which the Jews have been wandering over the face of the earth, rebellion and treachery to the government under which they lived have not been frequent among them.

A number of them in Russia under the old régime doubtless had revolutionary and subversive tendencies, apparently confined to Jews of university education, who found difficulty in earning a livelihood under the restrictions and who naturally cherished resentment.

With their active minds, with their genius for trade, cultivated by centuries of necessity, they prefer trade to manual pursuits, but many of them are skilled artisans in many countries.

DENIED EDUCATIONAL PRIVILEGES

They do not follow agricultural pursuits because they have long been forbidden to own land, and by this long deprivation their tastes have been formed for city life. They have been cooped up in ghettos of the city and, perforce, have formed the habits of an urban population.

Denied the opportunity for education, they are ignorant; but no people in the world manifest so much anxiety to secure education and improve the opportunities when offered with such earnestness and success.

It cannot be good for a country like Russian Poland and the Pale to continue 6,000,000 of its inhabitants in such a persistent condition of poverty and demoralization. It must interfere with the proper development, prosperity, and health of the rest of the population. So large a congestion of this kind must make a sore spot in the economic, political, and social life of this part of Russia.

In spite of their deplorable condition and the immigration it stimulates, the Russian Jews are very prolific and their number is not diminishing. Their presence in Russia has been a continuing fact and the policy pursued in respect to them up to the Revolution did not remove it or alter it and it was not a success.

In aid of the Christian peoples of the Balkans and Armenia, the Russian Government did a great work, for which those peoples should be very grateful. The conduct of Russia toward them was in marked contrast to its attitude toward the Jews within its own jurisdiction. Is it too much to hope that the drastic experience of this war may lead Russia to a different view?

A BLESSING IN DREADFUL DISGUISE

If the war does help the Jew, it will indeed be a blessing in dreadful disguise. One-half the Jews of the world have had to bear its miseries, its cruelties, its sufferings. They lived in the theater of war between Russia and Germany and Austria. In this region, almost without ceasing, the campaign continued. The Russians laid waste the country in order to embarrass their pursuing enemies, and between the two armies the population, of which the Jews were a large part, suffered untold horrors.

As soon as the war came on, as soon as mobilizations were initiated, Germany and Austria, on the one hand, and Russia, on the other, vied with each other in a cultivation of the good-will of the Poles and the Jews.

Russia promised that an autonomous

Poland would be created from all three of the incomplete tribal districts of the partitioned kingdom. Some of the leaders of the Austrian Government announced an intention of giving autonomy to Galicia.

When the war came to an end, tremendous governmental changes occurred in the countries where the Jews are so greatly congested (see also page 23).

The dreadful destruction of life, the necessity for rehabilitation of these countries where the war raged with such violence and destruction, must necessarily give greater economic value to every man who survives. The loyalty which the Jews have shown to their respective governments in these countries under a most trying ordeal ought to impress their governments with the claim that they make to equal treatment.

While it is true that in the past much of the cruelty to the Jews has been immediately prompted by popular prejudice, nevertheless it is also true that, with the increase of popular control in all countries, their condition has ultimately been much improved. A war like this, which must be carried on by the people, increases their ultimate power.

REPRESSIVE MEASURES ALWAYS HARMFUL

Harsh and repressive measures have not helped the solution of the Jewish question. The result reminds one constantly of Æsop's fable of the contest between the wind and the sun in removing a man's coat from his back. The harder the wind blew, the closer the man held the coat to his body. It was only when the sun with its warm rays increased the temperature and created discomfort that the man removed his coat.

The harshest persecution and injustice merely strengthen the peculiarity of the Jew in his adherence to his ancient customs, in his exclusiveness, in his use of cunning to avoid outrage, and in his adherence to his religion and its ceremonials. Give him the sunlight of freedom and the balmy encouragement of equality of opportunity and he assimilates himself to his environment with all the quickness of perception, all the energy, all the enterprise, all the persistence with which he is so remarkably endowed.

If education and opportunity and freedom and equality are extended to them in the next generation, the traits to which objection is made will become less and less conspicuous, and Russia's great domain, which needs people of energy, people of keenness, people of enterprise, people experienced in trade, people of financial genius, will find a benefit in the presence of the Jews.

JEWS IN UNITED STATES

From the East End of New York and through centers of population in this country where Jews are gathered, by the million and hundreds of thousand, come the youth of the race who soon manifest a spirit of Americanism and get on.

They succeed in trade, they succeed in the professions, they succeed in business, and they move their homes to less crowded districts and acquire all the taste and views and fashions of their fellow-countrymen.

They cultivate little or no solidarity in politics, and they manifest a disposition to disintegrate as a community. They retain a loyalty to the race, but not a strict adherence to the ceremonial, and they intermarry with Gentiles.

A number of modern books written by Jews deplore this fact. They fear that Israel will be swallowed up in the nations. They are an excellent, law-abiding part of our population. Of course, criminals come from among them, poor and miserable as some of them are, but the criminal statistics do not show their percentage of criminals to be as great as that of the entire population.

When we consider the congestion in New York in the East End of one million Jews, and that this has come within the last thirty years, it seems remarkable that it has not given more trouble to our civilization and our government than it has. These are the lessons which an investigation by Russian statesmen into our experience would furnish.

STRENGTH OF THE JEWISH CHARACTER

The Jews of the world, in countries where they have had equal opportunities, have won their way not only to great financial power, but to places of commanding influence in journalism, in the

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ESTHER

Even in the days of Ahasuerus, who ruled "from India even unto Ethiopia," the Jews were objects of persecution; but they found deliverance at the hands of Esther, the niece of Mordecai, who not only was "fair and beautiful," but courageous and resourceful. The story of this Jewish heroine, aside from its religious significance, is one of the most appealing in all literature.

Photograph by A. F. Sherman

A RUSSIAN JEW AT ELLIS ISLAND, NEW YORK

Up to the time of the overthrow of the Romanoffs, the Jews of Russia were required by law to live in the cities of the Pale of Settlement. This restriction was one of the many causes for the influx of Jewish immigrants to our shores.

Photograph by A. W. Cutler

A TOWEL MERCHANT OF THE EAST SIDE: NEW YORK

New York's East Side is a veritable mine for curious and interesting sights. We see here one of the curb merchants, whose specialty is towels, taking a few minutes of much-needed rest on an old soap box. There are 3,300,000 Jews in America, most of them arrivals since 1880 (see pages 17 and 20).

professions, and in business. They have retained always an acute interest in the welfare of their coreligionists throughout the world. Their religious training has inculcated in them the duty of charity to all—Jew and Gentile—and they have given unsparingly to aid their brethren in distress.

Individuals like Sir Moses Montefiore have given much time, money, and effort all over the world to the cause of their race. Baron Hirsch and Baron Rothschild have planned and carried through rural colonies of the Jews in Palestine, in Argentina, and in Texas.

The Zionist movement to secure a migration of Jews back to Jerusalem does not meet with the undivided support of the Jewish people, but it certainly has substantial strength as one project for relief of the congestion in east Europe.

During the World War the Jews of this country and elsewhere raised a fund of nearly $25,000,000 with which to aid their poor peoples suffering in the train of the war.

In the countries where they have money, power, and influence, great Jewish committees have long been organized to help in securing civil rights, religious freedom, and equal opportunity for the oppressed of their race.

The influence of the leaders of the Jews in Europe and America upon the Congress of Nations at Paris in behalf of the better treatment of the Jews has been weighty and we can be sure that it was courageously and wisely exercised.

The direct interest we have in the Jewish question in these Eastern countries was stated by Secretary Hay to the signatories of the Berlin Treaty in protest against Rumania's persecutions and breach of her treaty obligation, to wit, that we are the world's refuge for such people, driven out by measures of oppression and restriction, and their coming in great numbers in their present condition imposes an unfair burden upon us.

We may rejoice that more than half the members of this great race have won their long progressive struggle for merely an equal chance with other men; but we cannot tear out that distressing page in the history of Christian civilization containing the record of seventeen centuries of persecution.

THE JEWS IN THE NEW STATES TO BE PROTECTED

The result of the war and the breaking up of Russia and the giving reign to the principle of self-determination of racial units have created seven independent European States in central and eastern Europe. Of these, the Baltic Provinces, Poland and the Ukraine, as well as the Czecho-Slovak State and the Jugo-Slav State, have many Jewish citizens. In addition to this, the Greater Rumania, which is to receive Transylvania from Hungary, is another State which will have many Jewish citizens.

The German treaty specifically provides that the five great Powers shall make future treaties with Poland and with the Czecho-Slovak State securing the religious liberties of the people who constitute a minority in those States; and it is understood that similar provisions are to be included in the Austrian treaty in respect to the Jugo-Slav State and Rumania.

It is to be hoped that the securities exacted in these treaties will be of a character more effective than were the requirements of the Congress of Berlin in respect to Rumania. Indeed, we can be sure that they will. The prejudice against the Jews still remains in those countries, and cannot of course be eliminated by mere legislation. But Jews can be given equal rights and be protected in those rights, and secure the equality of opportunity through such protection.

The League of Nations is to be a continuous body and will have power enough to see to it that treaties of this character are performed by nations which the war has in fact created and which will continue to be dependent for some years upon the League for their own integrity and independence.

A MAP OF KOREA: THE REGION TRAVERSED BY MR. ANDREWS' EXPEDITION (SEE ACCOMPANYING ARTICLE) EXTENDS ALONG THE UPPER COURSES OF THE TUMEN AND THE YALU RIVERS

EXPLORING UNKNOWN CORNERS OF THE "HERMIT KINGDOM"

By Roy C. Andrews

Author of "Shore-Whaling: A World Industry"

With Photographs by the Author

ALTHOUGH Korea has a civilization extending nearly 4,000 years into the past, many of the natives in the north have never seen a white man. They are living among the hills today much as did their ancestors centuries ago, worshiping mythical gods in the rocks and trees on every mountain-top, keeping their women in semi-slavery, and dying in ignorance that beyond the narrow confines of their own peninsula lies a world replete with undreamed of wonders.

Wrapped in the mantle of Oriental seclusion, for centuries Korea successfully guarded the secrets of her mountains and her people; but at last the clamor of foreigners at her doors could no longer be stilled, and she yielded reluctantly inch by inch, although realizing that the foundations of her weak government were crumbling beneath her.

It was in 1882 that the first treaty with Korea was signed by the United States, and foreigners took up their residence with official sanction at Chemulpo, the seaport of the capital, Seoul. Even with this foothold in the new country the unwelcome visitors pushed their way but slowly into other parts of the kingdom, and as late as 1897 only a relatively small portion had been visited by white men.

Secret of the "Dragon Prince's Pool" Discovered by Missionaries

After the Russian-Japanese war of 1904, however, when the country was freely opened to foreigners and its railway had been completed, the exploration of the northern part progressed by leaps and bounds, until the only extensive unknown area lay along the north central boundary between the Tumen and Yalu rivers.

This was said to be a region of treacherous swamps, densely forested plateaus, and gloomy cañons—a vast wilderness, treasuring in its depths the ghostly peak of the Long White Mountain, wonderfully beautiful in its robes of glistening pumice. The secret of its summit, where the "Dragon Prince's Pool" lies far down in the ancient crater, had been learned as early as 1709 by two Jesuit missionaries, coming from the north through Manchuria, but the approaches to its base from the south and west in Korea had never been traversed by a white man.

Its zoölogy, except by inference from that of remote surrounding regions, was less known than its geography, and this led the American Museum of Natural History to send an expedition to make a study of its fauna.

Japan Aids the American Expedition

Before any non-resident foreigner can go into the interior, permission must be obtained from the Bureau of Foreign Affairs at Seoul, for the Japanese insist on knowing the "reason why" for the visits of all foreigners to the remoter parts of their newly acquired possession. The Museum's expedition was given the enthusiastic support of the government, however, and was furnished with one of their official interpreters, a Japanese who spoke Korean, Chinese, and a little English. A Korean cook who knew some English was also engaged, and developed into a valuable assistant after he had become convinced that he was not the leader of the expedition.

At first he was the source of endless trouble; for, like all Koreans, he saw in his position as "man of all work" an opportunity for extensive graft. He began by affecting an extraordinary aversion to Japanese food and begging money for

A MAN AND A BOY: THE MAN (MARRIED) IS 11 YEARS OLD, THE BOY (UNMARRIED) IS 47

The man's wife is ten years of age. While they are legally married, they continue to live with their respective parents. The unmarried "boy" is not allowed to "do up" his hair or wear a hat during the years of his single unblessedness (see page 33).

THERE IS A SUGGESTION OF MOHAMMEDAN MODES IN THE STREET ATTIRE OF THESE SEOUL WOMEN

While a white, green, or red combination cloak and veil is obligatory on the street, the Korean woman of the middle class affects bright, solid colors in her home. The women of the wealthy class go from place to place in the seclusion of curtained chairs borne by coolies.

OUT FOR A STROLL IN SEOUL

Women of the middle class in Seoul invariably wear for their street costume either a white, a green, or a red long coat over their heads like veils. The garment reaches to the knees (see also illustration, page 26).

Korean "chow," continued by annexing a relative as camp-follower and general parasite, but ended abruptly when I caught him paying for some vegetables and pocketing half the money himself. He made an excellent football for some moments afterward; but the medicine, although severe, effected a complete cure, and from that day to the end of the trip "Kim" was my devoted slave.

He was a quaint little fellow and very amusing. One day I asked him if he was a Christian and he replied, "Yes, some times. It takes plenty time to be Christian. When I got no work, then I be Christian, but when I have good job then I no chance for waste time in such silly things." And I am afraid that Kim's attitude is that of many other Orientals, where western religion is concerned.

I talked with him often about the early history of his country, in which he was well versed, and once asked him if the Koreans liked the Japanese and the new rule. He looked up very solemnly and said, "I tell you, Misser Andrews, when Japanese near by, then Korean say

A FERTILE VALLEY IN THE VICINITY OF THE CAPITAL CITY OF SEOUL

Korea is about as large as New York and Pennsylvania combined, but the arable land comprises only about one-fourth of its area. A range of barren mountains and scantily clad hills extends throughout the entire length of the peninsula.

he like him because he must, but way down in his stomach he no like Japanese at all."

NO ACCOUNTING FOR KOREAN TASTES

Our expedition landed at Chon Chin, or Seshin, as the Japanese call a little village on the northeast coast about 150 miles south of Vladivostok.

The first part of our journey on an interesting little railway, up which we were pushed on hand-cars, was along the seacoast, where the native fishermen were bringing in great nets full of "men-tai." This fish is used as a basis for a favorite dish of the northern Koreans, called "kimshi," which is made from onions and garlic, a whitish doughy substance, a plentiful supply of red pepper, and a little water. A fish which has reached an advanced stage of decomposition is added and the mess placed to one side to ripen. After several days it is generally considered to be "high" enough for the most discriminating epicure.

From the old walled town of Puryon we were pushed up the railway to Muryantei and spent the night there in a Korean "hotel." It was my first experience and one which I shall never forget, for the ordinary house is inhabited by an extraordinary variety of insect pests. Lice, bed-bugs, fleas, cockroaches, and spiders literally swarm under the matting and over the walls, making the night unbearable to any one save a native. I had a folding canvas bed, but the insects crawled up its legs, and after further experience I learned that the only way to rest comfortably in a native house was to spread a circle of insect powder about the cot, get inside a sleeping-bag, and pull the cover tightly over my head.

Structurally the huts are interesting, for the Koreans have anticipated our hot-air furnace by many hundreds of years.

THE KOREAN PEASANT WOMAN'S NECK MUSCLES ARE AS WELL DEVELOPED FOR BURDEN-BEARING UPON THE HEAD AS ARE THOSE OF THE SOUTHERN DARKY

The man of the family usually prefers to do his bit between his shoulders, his load being strapped to a bamboo rack (see illustrations on pages 32 and 44).

Every house is raised a foot or two above the ground, and a wide flue runs beneath the floor, emerging at the other end in a tall chimney, made in the north from a hollow log. When a fire is built at the entrance to the flue, the smoke and heat are drawn beneath the house, keeping the rooms warm during even the coldest days of winter (see page 38).

At Muryantei we left the push railway and, with our equipment piled in three creaking bull-carts, proceeded westward toward Musan, the largest town in northeastern Korea. The valley up which we traveled was extensively cultivated, and with its two rows of telephone and telegraph poles along the road presented an astonishingly occidental appearance. Except where a group of picturesque, thatch-roofed huts nestled into the hillside or strung themselves along the edge of a streamlet, there was little to suggest that we were not among the foothills of Montana or Wyoming, in my own country, 10,000 miles away. It was most disappointingly civilized, but interesting withal.

THE KOREANS OF THE NORTH DRESS MUCH LIKE THEIR BROTHERS AND SISTERS OF THE SOUTH

The men wear loose, baggy trousers tied at the ankle, short jackets, long, flowing kimonas, and the peculiar horse-hair hats which are the pride of every Korean's heart and are worn both indoors and out by the married men only.

Musan was reached in two days, and it was a revelation. Here, on the very edge of Korea, lies this wonderful ancient city, its grim old walls bearing five centuries of history. It was like stepping backward to another world, into a story of the Arabian Nights. I was enchanted and wandered about the half-ruined buildings, reading fascinating bits of history from the faded inscriptions and public monuments, forgetting for the time that my mission called me farther.

A TIGER HUNT IN THE KOREAN MOUNTAINS

Few white men have been fortunate enough to wander inland to the gates of this ancient city. During the Russo-Japanese war several Russians took refuge there, and since then a half dozen foreigners have discovered it; but, except for these stragglers, Musan lies unknown to the western world. The great central palace, or reception hall, remains intact, and close by, in partial ruins, is the temple guest-house. The smaller public buildings, the gates, the watch-towers, and, most of all, the walls themselves, each one has its own peculiar fascination, telling its own story or adding a chapter to that of its neighbor.

A company of Japanese gendarmes is stationed in the old military quarters of Musan, and the commander, Lieutenant Kanada, showed us the greatest kindness. At the time of our arrival the town was much excited over two tigers that were on a mountain some 12 miles away, at the little "village" of Hozando, and we spent nearly three weeks hunting there.

These northern tigers are splendid animals, more beautiful than their relatives

of India or the Malay Peninsula, and range among the bitterly cold mountains of China, Korea, and Manchuria, far up into Siberia.

DRINKING HOT BLOOD AS A TONIC

On the first day's hunt at Hozando a deer was shot. The bullet, passing through both lungs, filled the thorax with clotted blood, and as soon as the animal was opened Paik, my Korean gun-bearer, plunged his face into the half-liquid mass, drinking and eating until the last drop was gone; then removing the steaming red liver, he cut it into slices, swallowing them as fast as possible.

I was tremendously surprised, but learned afterward that the Koreans believe the blood of a deer or any wild animal, if drunk when warm, to be a splendid tonic. Tigers' claws, whiskers, bones, and teeth are especially valuable, and preparations made from these materials were often given to soldiers before a battle or any especially hazardous enterprise, since they were believed to inculcate great bravery.

AN IMPOSING CAVALCADE

When we returned to Musan to prepare for our trip into the wilderness, trouble began. It was almost impossible to procure horses and men, because of the fear of the Chinese robbers, who were said to range along the borders of the forest. My party were demoralized, and had it been possible to procure any "tiger-bone tonic," they would have been given a liberal dose; but none was to be had, and it was only after strenuous and forcible efforts by the gendarmes and myself that we finally got away, with six horses and five *mafus* (drivers), besides my cook, interpreter, and gun-bearer. We made rather an imposing party, but the hearts of the Koreans were heavy and their spirits at lowest ebb.

Our objective was the little village of Nonsatong, just at the edge of the unexplored wilderness, 40 miles away. The first portion of the journey lay over the picturesque hills above the Tumen River, which forms the northeastern boundary line between Korea and Manchuria, and when we were well upon the mountain slopes the view was magnificent. Far below us were oat and millet fields and villages of tiny, dirty huts, about which white-garbed natives lounged in the sunshine, smoking their long pipes, or perhaps lazily drove a pair of huge bulls back and forth across a field, dragging after them the primitive wooden plow used by the Koreans of the north.

THE CURIOUS KOREAN WATER-HAMMERS

Everywhere the log water-hammers, made for pounding grain, were rising and falling ceaselessly like things of life. The hammer is constructed from a 12-foot log, one end of which is hollowed deeply, the other being weighted with a heavy post set at right angles to the shaft. The log is so placed that its concave end will rest under a stream which has been diverted to flow in the desired direction, and a tub for the grain is sunk deep into the ground, where the post will fall within it (see page 37).

When the concave portion is filled with water the log rises and the water is tipped out; the opposite end then becomes heavier and the pestle falls into the tub beneath it; thus the hammer alternately rises and falls so long as the water flows. This invention probably came from China and is not found in the southern or central parts of the peninsula.

We had our first sight of forests in Korea when we reached Nonsatong, or Nojido, as the Japanese call it. This is the last settlement on the edge of the wilderness and consists of 10 or 12 small and very dirty huts strung out along a branch of the Tumen Valley.

The inhabitants had never seen a white man, and the curiosity with which we regarded each other was mutual. At first they were inclined to be somewhat shy and contented themselves with standing silently, watching my every movement; but, after learning that I was not averse to being examined, they crowded about for closer inspection of the strange person who had suddenly appeared among them as if from another world.

NATIVES MARVEL AT THE BLUE-EYED STRANGER

They were most interested in the fact that my eyes were blue, and not black, brown, or dark gray, as were their own

"NICE, FRESH SEAWEED, FINE IN FLAVOR": THE KOREAN COUNTERPART OF OUR FISH-MONGERS, OYSTER CRIERS, AND HOKEY-POKEY ICE-CREAM VENDERS

While the coolie is the chief burden-bearer of this country, the Koreans also make use of a strong and spirited breed of small horses. Men and oxen are employed in the cultivation of the soil, which in the southern half of the peninsula is extremely fertile. On the seacoast the inhabitants depend largely upon the yield of their fish-nets for food.

THIS BOY HAS MALARIAL FEVER AND IS WEARING ON HIS BACK A PAPER ON WHICH IS PRINTED A PRAYER ASKING THAT HE BE CURED

He was not averse to accepting the benefit of western medicine, however. After swallowing a five-grain quinine tablet, he was given five others, with instructions to take them at intervals of two hours. He evidently saw no reason for delaying his recovery, and swallowed the 30 grains at a gulp (see text, page 33).

or those of the Japanese. Although they had heard of the blue-eyed men (Russians) who had come to Musan, one had never been seen at Nonsatong. They were curious to know if I could see well, and in order to test my sight would hold objects at various distances or select a tree or rock a few hundred yards away and ask me to tell them what it was.

As a matter of fact, their doubt as to my ability to see perfectly is not so curious after all. I remember distinctly that when as a boy I visited the "dime sideshow" of a traveling circus and saw an albino man, the first question I asked was whether or not he could see as well as others. My lighter complexion did not cause comment, for many of the Korean women and girls, especially those of the higher classes, have skins almost as white as a European.

While the eye-tests were going on, a dog stopped upon the summit of a hill about 250 yards away, and they asked if I could see it. I said "Yes," and moreover that it could be killed from where we stood. They laughed incredulously, and, since the owner of the dog was not present, suggested that the experiment be tried.

Resting the heavy repeating rifle on a stump, I shot the animal through the fore quarters. The Koreans gasped, and when they saw the dog's body, torn and mangled by the soft-point bullet, their astonishment was ludicrous. It was not a useless sacrifice of canine life, for it inspired the greatest respect for my fire-arms, and, moreover, what remained of the dog was quickly boiling for the dinner of four hungry natives.

DOGS BRED FOR FOOD

Dogs are bred for food, since the Koreans are great meat eaters. At one time they did much hunting; but the Japanese confiscated all fire-arms, and now wild game is caught only in traps and pits. Like all the natives of the interior, the people at Nonsatong are dependent for food upon what they grow. They are much more industrious farmers than the Koreans of the south and raise quantities of oats and millet, but it seems to be impossible to cultivate rice successfully in the Tumen River Valley.

Their dress was like that of the southern natives. The men wear loose, baggy trousers tied at the ankle, a short jacket, a long, flowing kimona, and a peculiar horse-hair hat, which is the pride of every Korean's heart. The hat is always worn in the house as well as out of it, but only by those men who are married and have thus obtained a definite social position in the community.

A "MAN" 11 YEARS OLD AND A "BOY" OF 47

One day when on the way to the Yula River we passed through a village where I noticed a little fellow wearing a hat, with his hair knotted on the top of his head. He was only a child, and I said to the cook, "Is that little boy really married?" "Whom do you mean," he asked, "that man?" pointing to the child.

I said, "Yes," and learned that the little fellow was only 11 years old and had a wife of 10. They were legally married, but were both living with their parents, and would continue to do so for the next two or three years. The boy was referred to as a "man," however, and had all the privileges in the community of a full-grown member (see page 26).

Near the "man" was a fellow of 47 wearing his hair parted in the middle and hanging in a long braid down his back. He was unmarried, could not wear a hat or tie up his hair, and would always be considered a boy, no matter what age he reached. The two were photographed side by side, to the great displeasure of the 11-year-old-man.

When we first arrived at Nonsatong one of the natives was ill with malarial fever and came to my camp in a pitiable condition. Just under the collar of his jacket he was wearing a slip of paper on which was written a prayer petitioning the god of the valley to bring him health again. I gave the boy a five-grain tablet of quinine, telling him to swallow it at once, which he did. I then wrapped five other tablets in a bit of paper and told him to take one every two hours; but hardly was my back turned before he swallowed all five at once; he thus got 30 grains of quinine in less than 10 minutes.

We spent some time at Nonsatong and found the shooting good. On the fifth

MAIN STREET IN A TOWN OF NORTHERN KOREA

The furrows in the center are combination cart ruts and municipal sewage system. Except for the occasional thatch-roofed huts nestling into the hillsides or strung along the banks of a stream, a traveler in this part of Korea might imagine himself in the foothills of Montana or Wyoming.

ALL ABOARD ON THE TWO-COOLIE CAR EXPRESS AT CHON CHIN!

The American Museum's Expedition traveled a short distance from this seacoast town on the Push Railway, each little car being propelled by man power. Note the Japanese flags displayed at the door of the station.

THE HUT IN THE MIDDLE DISTANCE WAS OCCUPIED AS A LODGE DURING THE EXPEDITION'S TIGER HUNT

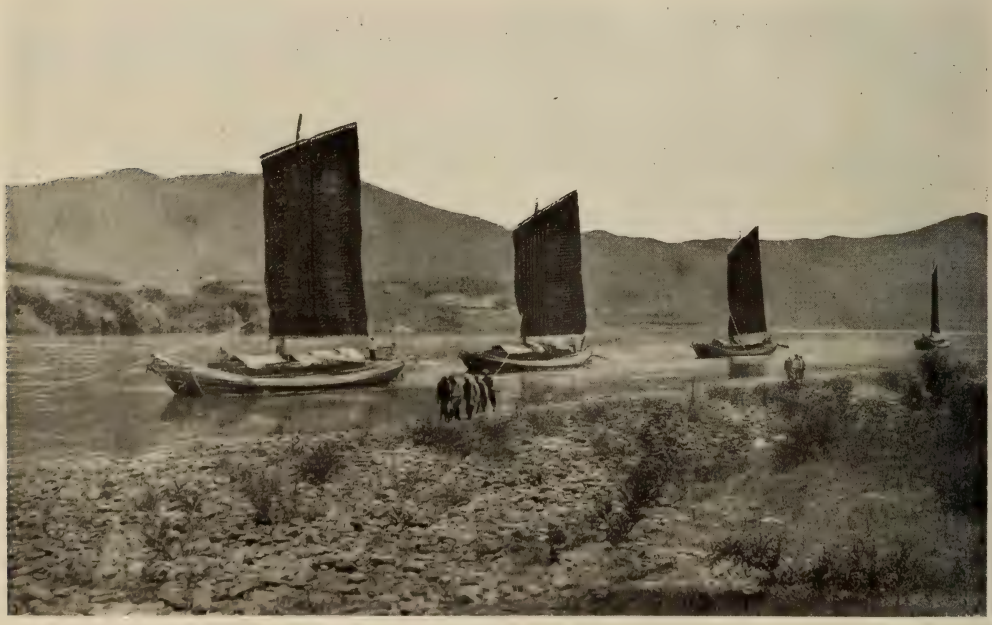
This bleak, snow-covered region is in striking contrast to the dense jungle haunts of the Bengal species of tiger. The Korean animal ranges over the bitterly cold mountains of China and Manchuria far up into Siberia.

A TIGER-HUNTING LODGE AT HOZANDO

The tigers of northern Korea are magnificent creatures, more beautiful than their jungle-cat cousins of India and the Malay Peninsula (see text, page 30).

FISHERS OF MEN-TAI

This sea food is captured in vast quantities by means of nets. When the fish has reached an advanced stage of decomposition, it forms the basis of a favorite Korean dish called "kimshi," which, when seasoned with onion, garlic, and red pepper, is a rare delight for the Korean epicure.



CHINESE DRAUGHT MEN TOWING JUNKS UP THE YALU

The huge brown sails do not supply sufficient motive power to overcome the swift current of the stream. From seven to eight weeks are required to tow the boats from the west coast to the head of navigation, and only one and a half round trips can be made in a season before winter sets in and ice blocks the stream (see page 48).

AN HYDRAULIC HAMMER À LA KOREA, USED IN POUNDING GRAIN

This crude but effective mechanism for utilizing water-power is believed to have been borrowed by the natives of northern Korea from the Chinese. It is not in use in the southern portion of the kingdom. The log is hollowed at one end, and into it a stream of water runs. When the end of the log has become full of water it tips up, the water runs out, and the log falls, pounding the meal (see photograph below).

THE HAMMER AS IT RISES FROM THE MORTAR (SEE TEXT, PAGE 31)

THE KOREANS HAD HOUSES HEATED BY HOT-AIR FURNACES LONG BEFORE WESTERN CIVILIZATION THOUGHT OF SUCH A CONVENIENCE

Each house is raised a foot or two above the ground and a wide flue runs beneath the floor, emerging at the other end in a tall chimney made from a hollow log. Even though the houses are poorly constructed, this method of heating is effective in the severest weather.

day, when returning to camp from the usual morning hunt, we came upon seven men from the village kneeling at the base of a great rock bearing a larch tree, in front of which they had placed brass dishes containing nicely cooked chicken and millet, beside several cups of *saké*.

They were making their annual spring offerings to the god of the valley, asking for good crops, fine weather, and the birth of many horses and children. The food had been prepared near by, the dishes having been carefully cleaned and boiled in order to remove all traces of human touch before they were presented to the god.

After the praying was finished I was invited to join in the feast which followed. The interpreter hurried to camp for the kodak, and several pictures were taken during the meal, but we were too late for the opening ceremonies. They said the food could not again be offered to the god, since it had already been tasted by men.

They were greatly pleased because the white *yang-ban* (nobleman) had consented to eat with them, for they believed that their valley would be blessed with unusual good fortune. I have often wondered since whether the old *joss* was as honored by my presence as they thought he would be.

CONTENDING WITH THE TIMIDITY OF NATIVES

When the collecting at Nonsatong was finished, we started early one morning on the trip through the primeval forests to the base of the Paik-tu-san. Our destination was a log cabin, some 14 miles up the Tumen Valley, which had been

THE WALLS AND FLOOR OF THIS TYPICAL NORTHERN KOREA HOUSE ARE MADE OF CLAY; THE THATCH IS OF RICE STRAW

The average native house is an insect incubator. The only way for a westerner to sleep in comfort under such a roof is to draw about his canvas cot a magic circle of insect powder. By covering his head he avoids intermittent showers of fleas and roaches during the silent watches of the night (see text, page 28).

built a number of years before by a Korean hunter. Few of the natives of Nonsatong had been even as far as this hut and only two beyond it. For many years wandering gangs of Chinese and Korean bandits have ranged along the forest borders, keeping the natives in terror and exacting tribute from every caravan which passed through the territory under their control. If the tribute was not paid destruction was certain. The Japanese have now pretty well cleared the country of these marauders; but though few remain the fear of them, inbred in the peace-loving Koreans, will live for years to come.

Our horsemen were reluctant to venture into the forest, and had they not realized that the commands of the Japanese gendarmes gave no alternative, they could not have been forced to go at all. Nearly an hour was spent praying at a little shrine on the edge of the woods, and, with gloomy faces, they followed the half-obliterated trail which led to the log cabin. We traveled along the Tumen River, passing through groves of oak, birch, and larch trees into a beautiful park-like valley covered with long, dried grass. It was hard to realize that before us stretched thousands of acres of unknown forests, through which a white man had never passed.

PLUNGING THROUGH THE PRIMEVAL FOREST

We found the log cabin to be in good condition, although it had not been occu-

MILLINERY FOR MEN IN KOREA

This sedate citizen is not wearing a lamp shade, but an oiled-paper umbrella to protect from the rain his pill-box hat of horse hair perched upon a tightly coiled queue. Note his long pipe.

pied for years, and on the hillside above it was a row of little bark shrines, each of which had been built as an offering to the god of the mountain by a native who had hunted there. My gun-bearer set about the construction of another while the horses were being unloaded, and together we brought a cup of *saké* and a little rice to propitiate the joss.

The hut was on the very outskirts of the dense forest which stretched far away to the northwest up the slopes of the Long White Mountain; but shooting was poor and we left in a few days.

The wilderness became thicker as we ascended the plateau and the oak and birch trees disappeared, giving place to larches, from 60 to 100 feet in height, strung with long gray moss. We saw but few birds and no mammals, and even at night when the traps were set the bait remained untouched.

The silence and the subtle influences of the forest began to work upon the imaginations of the Koreans, and after we had been threading our way for five days through the mazes of an untouched wilderness the natives were discouraged and asked to return. They knew not where they were going or why, except that we were to reach the base of the Paik-tu-san. When we were high upon the mountain slopes the snow had become so deep that it was difficult to proceed, and we made the last camp in a driving storm of sleet and rain which kept us in the tents for two days.

I had heard before leaving Nonsatong of what the Koreans called the *Samcheyong,* "Three bodies of water." The description sounded much like lakes, which were not supposed to exist in Korea, and it seemed well worthy of investigation. My gun-bearer had been at the Samcheyong 18 years previously, when a boy, and I had learned its general location in reference to the Paik-tu-san. It was decided, therefore, to return two or three days' march, strike directly through the forest to the Samcheyong, and make our way to the Yalu River, which could be descended to the west coast.

The Koreans were delighted to turn southward, and after reaching an open glade on the bank of a creek we camped for a few days, trying to trap. We caught

nothing and saw no birds. A few old deer tracks still showed near the stream, but the animals had not been there for months.

WE FIND LAKES FORMED BY AN ERUPTION OF A SACRED MOUNTAIN

When we broke camp and I told the Koreans that we were to go to the Samcheyong, there was an open mutiny, but with considerable difficulty they were persuaded to go on.

I spent two sleepless nights about the camp-fire with the rifle on my arm to prevent the horses being stolen, but the third day we marched into a vast burned track thousands of acres in extent.

A tremendous fire had devastated the forest 10 or 12 years before and left in its wake a cheerless waste of blackened tree skeletons and charred stumps. All day we tramped through this area of desolation, and at night camped on the shores of a beautiful lake 3,700 feet above the level of the sea. We found that there really were three lakes and a long connecting pond between two of them.

They seemed to have been formed by some violent eruption of the Paik-tu-san many years ago, for the basins and shores were of volcanic ash, and my gun-bearer said that if we dug down about 12 feet charcoal would be found. All were circular, the largest about three miles in circumference, and beyond them rose the beautiful white slopes of the Paik-tu-san, the sacred mountain of the Manchus. By building a log raft to enable us to take soundings, we found the largest lake to be about 8 or 10 feet deep, but during the season of rain or melting snow the water would undoubtedly rise greatly. In the center of the lake was a beautiful little island, heavily wooded, with a long sand-spit projecting toward the shore.

I was greatly disappointed upon returning to Seoul to find that the lakes were known to the Japanese. A military map showed them under the Korean name of Samcheyong, and they were probably located either from some ancient Chinese map or from the statements of Koreans. So far as I have been able to learn, none of the foreigners in Seoul or other parts of the country knew of their existence.

KOREA'S SWEET SIXTEEN

The lot of the average woman of the Hermit Kingdom is not an enviable one, as she is kept in semi-slavery by her master. Plural marriages are not recognized by the Koreans, but concubinage has a definite status in their social life, as it has had throughout the Far East for many centuries.

We remained at the Samcheyong for several days and then started to cross the watershed toward the Yalu River. After leaving the summit of the mountain the forest became denser than that near the Paik-tu-san and the trees larger. Great larches stretching up 150 feet were on every side, their trunks and branches covered inches thick with lichens and moss and their bases buried in tangled undergrowth. The ground was soft and wet, and soon we were in a series of swamps which made travel well nigh impossible. The only way in which they could be passed was to cut down trees or drag heavy logs, lay them end to end, and drive the horses over.

LIFTING OUR HORSES OUT OF THE SWAMP

When an animal slipped off the logs and became mired, it would lie quietly in the water until the packs had been removed, and even then make not the slightest effort to extricate itself. Fortunately the horses were small, and with six men lifting at the legs, head, and tail, and the cook shouting with all his strength we could usually get the brute upon the bridge again. During the whole day we covered only six miles, but the swamps were finished.

Two days more of cutting our way through the wilderness and we came into a thin forest, where a broad trail led down the mountain side. Picking our way among huge boulders, which in many places the horses could barely pass, we descended nearly 2,000 feet to the valley below. There, in a clearing just at the edge of the forest, were four log houses constituting the village of Poti-san, the first habitations on the Yalu side of the watershed. We remained over night, and the next day crossed another heavily wooded mountain to the village of Potaidon.

WHITE MAN ATTRACTS A MULTITUDE OF THE CURIOUS

Although Japanese gendarmes often come there, the Koreans had never seen a white man, and I was an object of even greater curiosity than to those on the Tumen River side of the watershed. We camped not far away, in a little grove of trees on the bank of the river, and my tent was surrounded by a curious crowd of natives within a very few minutes after it had been pitched. The next day Koreans were coming from every direction to see our camp and the strange man there.

After collecting at Potaidon for some time, we started across the mountains toward Heizanchin, on the Yalu River, the largest city in north central Korea. A good road led over the hills, and upon the top of one we came to a picturesque little temple, where I found a poor old man almost crippled with rheumatism. For five days and nights he had been praying at this shrine, called the "Temple of Good Fortune," asking the god to relieve his sufferings, and, although it had been raining much of the time, the old fellow had been sleeping on the wet ground.

Beyond the temple we descended into a treeless valley where, in one of the huts, a funeral was in progress. A woman had died and the corpse was lying in the largest room of the house, while a great many relatives and friends, all dressed in coarse cream-colored cloth, were sitting about the door and courtyard drinking quantities of strong *saké* and keeping up a continuous monotonous wail. As soon as I appeared the corpse lost all its attraction, and every man in the entire assembly rushed outside to get a look at me, the women alone remaining within to continue the dismal wail of *eigo! eigo!* So long as I remained near the house the funeral was forgotten.

THE PICTURESQUE RUINS OF KOREA'S SENTINEL CITY

The country which we traversed was becoming more and more deforested, and in many places somewhat reminded me of the Egyptian sand-hills near Cairo. There was little vegetation except on a hilltop now and then, where a few trees had been left to shelter a Korean grave. Nearing one of the tributaries of the Yalu River, however, we found the hillsides covered with beautiful flowers Purple azaleas, buttercups, and violets were everywhere, and, farther on, the banks of a rushing mountain stream

WHEN THE WESTERN TRAVELER PASSES THROUGH THIS SOUTHERN GATE OF MUSAN, HE ENTERS ANOTHER WORLD

Here on the very edge of Korea rises this wonderful ancient city, its half-ruined buildings and crumbling walls bearing the faded inscriptions of five centuries of fascinating history

A STUDENTS' DORMITORY AT MUSAN FOR MEN WHO COME TO TAKE THEIR EXAMINATIONS IN THE CONFUCIAN CLASSICS (SEE PAGE 30)

This house, in which they live as guests during the examination period, is five centuries old.

A KOREAN GUN-BEARER BRINGING IN THE QUARRY

The natives of northern Korea believe that the blood of a deer or any other wild animal, if drunk when warm, is a splendid tonic.

THE HUMAN PACK-HORSE OF KOREA

In the wicker basket attached to his bamboo saddle this native can carry a burden of from 100 to 200 pounds.

AZALEA-CLAD HILLSIDES WOULD SEEM TO ENTITLE KOREA TO BORROW CHINA'S SOBRIQUET OF "THE FLOWERY KINGDOM"

This beautiful plant, especially popular in America at Eastertide and at Christmas, is a native of the hilly regions of China, Japan, and Korea. It grows in special profusion in the valley of the Yalu.

AS IN THE CASE OF THE CAMEL, WHERE THERE IS A WATER JAR THERE IS A PICTURE

Though distinct both from the Chinese and the Japanese, the Koreans have many physical characteristics in common with both races—dark, straight hair, oblique eyes, and a bronze tinge to the complexion.

A WAYSIDE TEMPLE ON THE ROAD TO NONSATONG

Buddhism held sway in Korea from the tenth to the fourteenth centuries, but has been discredited in the kingdom for more than three hundred years, and the priests are an ignorant, immoral, and despised cast. While Confucianism is the official cult, ancestor worship is universal. Belief in malignant demons is so widespread that much of the substance of the average Korean is dissipated in the propitiation of evil spirits.

A SUPPLIANT AT THE "TEMPLE OF GOOD FORTUNE"

For five days and nights he slept on the wet ground, praying at this shrine for relief from rheumatic pains.

AN ACROPOLIS CROWNED BY THE SENTINEL CITY OF HEIZANCHIN

The flat-topped hill rises abruptly out of the level Yalu River valley and forms a natural fortress. For hundreds of years this city played a major rôle in the history of the country and was the scene of many fierce conflicts between Koreans and Chinamen (see page 48).

NATIVES AT A FUNERAL: WHITE IS THE EMBLEM OF MOURNING IN KOREA

The mourning period is three years, and upon the death of a royal person all the people must put on white. These facts are said to account for the adoption of white cloth for ordinary wear. Thus the Koreans are ever prepared for the inevitable end of man, whether in their own family or in the royal household.

were massed with lilies of the valley, which perfumed the air for yards about.

Two weeks after leaving Potaidon we reached the city of Heizanchin. A high, flat-topped hill rises abruptly out of the level river valley and forms a natural fortress, on the summit of which is the ancient town. For hundreds of years this sentinel city of Korea took an important part in the history of the country and was the scene of many fierce struggles between the Koreans and the Chinese, their neighbors across the river.

But its work has long been done; the grim old watch-towers have decayed and the crumbling walls are almost obscured by a luxuriant growth of vines and ivy. Nothing remains of the city iself except the picturesque gateway and an old shrine, standing on the very verge of the hill overlooking the valley below, where the Japanese have built a new and uninteresting town on the banks of the Yalu (see page 47).

The influence which a great river exerts, almost to its very source, on the country through which it passes was brought forcefully to my attention in Korea. As soon as we neared the Yalu we began to see evidences of lumbering and of the civilization which a great commercial enterprise invariably brings with it, one of the first indications being a party of Koreans carrying ordinary black umbrellas. These people had seen either very few white men or none at all, but were using many foreign articles brought by the Japanese.

YALU BOATS OPERATED BY MAN POWER

Lumber rafts were continually passing Heizanchin on their way down the river; but there were too many rapids in the vicinity to make the journey a safe one for our baggage, and so we continued across country about 50 miles, to the village of Shinkarbarchin. A log raft was secured there, and with our baggage piled aboard we floated some 375 miles, to the mouth of the river on the west coast.

The scenery on the upper Yalu is beautiful, but rather monotonous. Hills and mountains rise abruptly from the river on either side, leaving in many places hardly room enough for a footpath along the water's edge. At times the hills slope away far enough to give a few hundred yards of ground for cultivation, and there Korean and Chinese huts have found a resting place.

The river for the first 100 miles is exceedingly rapid, and a boat can float down it as much as 50 or 60 miles in a day. As it widens the force of its current decreases, the hills become lower, and villages appear at intervals. One of the most picturesque sights was the Chinese junks, loaded with salt or corn, which were being towed up the river by the natives.

The journey is a tedious one, for the boats must be hauled the entire distance against the strong current by man-power, receiving but little assistance from their huge brown sails (see page 36). It takes seven or eight weeks for the journey from the west coast up the river, and even by making the best possible time a junk cannot do more than one round trip and half of another before the winter ice stops navigation. The Yalu is called by the Koreans the *"Am-nok"* (green duck), from the color of the water in the early spring.

At Antung, at the mouth of the Yalu, our expedition took the train to Seoul, where the collections were packed for shipment to New York.

INDEX FOR JANUARY–JUNE, 1919, VOLUME READY

Index for Volume XXXV—January–June, 1919—will be mailed to members upon request

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THE GOLDEN EAGLE: KING OF BIRDS

"He clasps the crag with hooked hands;
Close to the sun in lonely lands,
Ring'd with the azure world, he stands."

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CASPIAN TERNS

One of the most graceful of birds, the flight of the tern is unusual. It has been described as "unlike that of any other bird, whether of sea or land; buoyant and slightly wavering, it reminds one a little of the high, apparently uncertain flight of a large-winged butterfly; and it is in perfect harmony with the idea of a being whose life is spent amid wind and mist and fluctuating wave.

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BARN OWLS: THE POLICEMEN OF THE FARM

A family of barn owls on the place constitutes a valuable asset, for these birds are the most effective natural check on rats, mice and other destructive rodents. Due to their extremely rapid digestion they are always hungry and a half grown owlet will eat more than its own weight in a single night. An old owl will catch more mice than a dozen cats.

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THE PELICAN: A SUPER-FISHERMAN

Although heavy and clumsy in shape, the pelican is as expert as the kingfisher at diving. It drops like a plummet into a school of small fish and rises to the surface, pouch filled with fish and water. As it stretches its neck and draws its bill straight up, the water runs out and the fish are left,—then a backward flip of its head and the whole catch is swallowed at one gulp.

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THE GREAT BLUE HERON

Although this bird nests high up in trees, it is much more at home on the ground, for it has been given equipment to facilitate its food-gathering activities rather than to put it at ease in the tree tops. Its "battleship gray" color reduces visibility; the long legs permit wading in streams; the dagger-like bill is an efficient weapon; the eyes, set slightly toward the bottom of the head, enable it to look down with comfort; and the long neck furnishes the means by which a fish, frog or tadpole swimming past a foot beneath the surface may be stabbed with accuracy and ease.

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A PELICAN COLONY

With bills sometimes eighteen inches long and a great sack below which is used like a scoop net, bodies five feet or more from tip to tip, a ten-feet spread of wings and legs disproportionately short, the pelican is a distinctive bird. After a fishing expedition the old bird returns to the nest, opens her bill and allows the clamoring young to help themselves from the plentiful food supply in the hammo

© William Lovell Finley

A FAMILY ROW: CASPIAN TERNS

Myriads of the various varieties of these beautiful birds have been ruthlessly slaughtered in the past, but laws now protect them quite generally. They frequent low sandy shores, live together in colonies near the water and build their nests by scraping out a slight hollow in the sand, where they lay from two to four eggs. Their raucous voices in chorus produce a deafening din and one can almost hear the "creakee-creakee" issuing from the widely opened bills of the argumentative trio pictured above.

© William Lovell Finley

BON VOYAGE

Ships at sea are rarely without an escort of gulls, which follow day after day on long ocean voyages, subsisting upon the scraps thrown out from the galley. These birds are masters of the air and perform seemingly impossible feats. By a perfect adjustment of the body they poise on outstretched wings apparently motionless or make headway in the teeth of a gale without a single visible effort.

A HUNTER OF PLANTS

By David Fairchild

Agricultural Explorer, in Charge Office of Foreign Seed and Plant Introduction, U. S. Department of Agriculture

Among explorers no individual receives less recognition for signal service to civilization than the hunter of plants. His name is not written upon new-found lands nor upon hitherto uncharted seas. But through his vision, his daring, and his fortitude he enriches the waste places of his home land and helps to feed thousands of today and millions of the future. The plant-hunter is an unsung Columbus of horticulture.

IT IS one thing to go hunting for wild animals and quite another to go hunting for plants. In the one case there is the excitement of the personal danger and the immediate result of the game, followed by the memories that crowd in as one sits before the open fire and talks of the days that are past.

In the other, the excitement of personal danger exists to a lesser extent, there is no game to be immediately eaten, but with each passing year there is the increasing interest which comes from the growth and spread of the plants one has found and imported; the orchards or avenues or fields of grain or the beautification of thousands of city dooryards.

Frank N. Meyer was a plant-hunter for the United States Department of Agriculture. He hunted plants in China and Siberia and Turkestan and in the Caucasus, and he was drowned on the second of June last, in the muddy waters of the Yangtze River, after nine of the most picturesque years that any one could imagine, spent in the dense forests of northern Korea, in Chinese temples perched on distant sacred mountains, and in wanderings through the orchards, gardens, and cultivated fields of that vast Oriental country.

A LIFE OF ADVENTURE AND SERVICE

What a life! To wander with a definite, soul-absorbing object, on foot, from village to village, inquiring his way and learning as he went of some new plant variety which, because of its perfume, the deliciousness of its fruit, the color of its flowers, the shade it cast, its alkali resistance, or its hardiness in bleak northern regions, might be worthy of sending to this country for our farmers, horticulturists, or lovers of dooryard plants to grow.

As Meyer stood before one of these new plants to which chance and his flair for new things had led his footsteps, he tried to picture in his imagination the region in the United States where it would grow; to wonder in what particular it might prove better than that which Americans were then cultivating, and what use they would make of it after it developed to full size and produced its fruit or flowers. It was his business to look ahead and predict the future of his discoveries. His was different work from that of the botanical explorer who collects for a museum, who is only looking for species that are new and have never before been collected and placed in the great herbaria of dried specimens.

While Meyer did indeed find a new species of hickory,—new to science—had a new lilac named after him, and added thousands of specimens to the herbaria of the country, his work was primarily the getting of living material of cultivated useful plants or their relatives.

He sent in hundreds of shipments of living cuttings and thousands of sacks filled with seeds of the useful plants of the countries through which he traveled, with the result that there are now growing in America fields and orchards and avenues and hedges of Meyer's plants which, could he only have lived, would

PLANT-COLLECTING CARAVAN EN ROUTE FOR THE WU TAI SHAN: CHINA

Unlike the gold-diggers' caravans, the mules are not loaded with picks and shovels and panning outfits. They are carrying bales of the moss in which florists pack plants, sacks in which seeds are shipped, and driers in which botanists press leaves and flowers. It was with this kind of an equipment that Frank Meyer traveled many thousands of miles in the out-of-the-way parts of Asia, looking for the relatives of our cultivated plants and others which could be grown somewhere in America and give pleasure and prosperity to millions.

have gladdened his heart and made him realize in a tangible way what a great pioneer work he was doing.

AN ENRICHER OF THE GARDENS OF THE WORLD

To Meyer, plants appealed just as to some people dogs or horses do, and this intense interest made him pack his collections with infinite patience, wrapping them in moss and Chinese oiled paper and burlap with his own hands before sending them by mail from some point in the interior of China to Washington.

Meyer was a Hollander by birth and spent his childhood among the gardens of Amsterdam, rising through his own talents to be the assistant of Hugo de Vries. His passion for travel took him on foot across the Alps and into Italy to see the orange groves and vineyards of the Mediterranean, and later led him to explore America and northern Mexico on foot. This restlessness, combined with his love for plants, drew him to my attention at a time when we were searching for some one who could travel over the roadless regions of China.

Meyer's work has always seemed to have a peculiar fascination for magazine and newspaper writers, and numerous are the picturesque accounts of his "experiences." Somehow, when I stand in an orchard and reach up into one of the trees and pick from its gray branches some of the large seedless persimmons which are the result of his work, I feel that he has left something more tangible, more inspiring, as a result of his travels, than is represented by the stories of midnight attempts on his life by ruffians in Harbin or threatened shootings by Chinese soldiers in the Kansu Province, exciting as those experiences were.

MEYER'S FELLOW-INMATES OF AN INN IN CHINESE TURKESTAN

"This is the house where we stopped for the night. The three Kirghiz women were much interested in the photographic apparatus and wanted their pictures taken. A Dsun Gan, the host, did not know exactly what to think of such an instrument. We were twelve people in this house, representing six different nationalities."—From one of Meyer's letters.

In addition to the actual introduction of seeds and plants, Meyer has rendered great service to our horticulture by showing us what the Chinese have done to improve their native fruits. They have developed their native persimmon from wild, inedible forms to varieties four inches in diameter and delicious as fruits can be; their native hawthorns they have made as large as small crab-apples, with an excellent flavor and texture all their own, suiting them peculiarly for preserving, and out of the native jujube, or Ts'ao, they have evolved scores of varieties, some of which are as large as apricots and with a flavor which puts them when candied into the class with the Persian date (see pages 68, 69, 72, and 74).

HE DISCOVERED METHODS AS WELL AS PLANTS

Our horticulturists can be proud of what they have done for many plants, but they have not yet begun to improve the native papaw, which is the largest wild fruit growing within the confines of the United States; nor have they selected our own large-fruited hawthorns, of which we have many more varieties than the Chinese.

While Meyer's travels were not in the main in what a geographer would call unmapped regions; while he made no geographic discoveries, his observations on the plants which the people use and their manner of using them constitute a real contribution to our knowledge of the foreign countries through which he traveled.

His first expedition in the years 1905-8 was into North China, Manchuria, and northern Korea; his second, in 1909-11, through the Caucasus, Russian Turkestan, Chinese Turkestan, and Siberia; his third, in 1912-15, through northwestern China into the Kansu Province to the borders of Tibet, and his last expedition in search of plants began in 1916, when he

A BAMBOO CABLE FERRY FROM TIBET TO CHINA

One of the multitudinous uses of the bamboo in China is for the manufacture of cables with which the boats on the Yangtze are hauled over the great rapids. The photograph shows a ferry on the Siku River, which separates the western province of Kansu, China, from Tibet. Meyer scaled the overhanging rocks on the China side to obtain this illustration of one of the uses of the bamboo.

AN OLD PLANTATION OF THE EDIBLE BAMBOO

Thousands of hillsides in China are covered with bamboo groves. Through their thin green leaves the sunlight falls with a greenish tint. Their plume-like stems rise 50 feet into the air and for 30 feet are without a branch—just jointed, brilliant green tubes, the most fascinating things in the world to put one's hand on. For decades these groves furnish to their owners an abundance of young shoots in the early spring—shoots which are as good to eat as asparagus—and poles so light and from which so many things can be easily and quickly made that they belong in a class by themselves. This bamboo can be grown from the Carolinas to Texas, and there is no reason to doubt that our grandchildren will wander, as do the Chinese children, through beautiful groves of this wonderful plant.

went in quest of the wild pear forests in the region of Jehol, north of Peking, and the region around Ichang. He was caught at Ichang by the revolution and for many months was unable to escape. The confinement and uncertainty with regard to the great war and an attack of illness had by this time combined to bring on a recurrence of a former attack of what amounted to nervous prostration, and before he could reach the encouraging companionship of people of his own class he was drowned in the waters of the Yangtze River near the town of Wu Hu, thirty miles north of Nanking.

HIS LETTERS PICTURE STRANGE CIVILIZATIONS

Meyer's letters are the letters of a real traveler. When written from cold, dirty inns, they reflected his surroundings of discomfort; from the sublime mountain tops or mountain passes of the Caucasus, they were filled with his quaint philosophy of existence. From Buddhist temples in the Kansu Province of China, on the borders of Tibet, they gave pictures of that strange civilization forty centuries old.

LEFT ALONE IN TURKESTAN

Writing from Samarkand, Turkestan, he said:

"Alone in Samarkand! My assistant yesterday got tidings from home that his presence was urgently needed, as the man in charge of his farm was severely injured by a horse, and he left me. The interpreter had left the day before, as his eyesight and general health had become rather poor these last days on account of the great heat, and so it has come to pass that I am left alone in this far-away land, with only a mere smat-

VEGETABLE GARDENS ALONG THE IRTISH: SIBERIA

Imagine the agricultural explorer walking through these gardens in southwestern Siberia, examining each variety of plant, in the hope that among them somewhere he might find a new kind or a new strain of vegetable which would prove better in some particular than those which we already have growing in America.

tering of Russian and no knowledge at all of the Sart language, which is much spoken here. I'll get out of it, however.

"On Saturday, June 11, we wanted to leave early, but I got a message from the police to appear before them. Something new, I thought. Well, we went and the whole thing was nothing but a curiosity to see me.

"The captain, or whatever his rank was, asked my interpreter whether I really was a botanist, whether I only had interest in plants, and more of such suspicious questions. He then told me that permission had come from St. Petersburg allowing me to photograph trees and plants only, and that for every locality I wanted to visit I had to get a special permit, either written or verbal, depending upon the importance of the place. But under no consideration would I be granted permission to go to the Afghanistan frontier, as foreigners were not allowed!

"We left the same day for Merv, where we arrived after midnight. The next day was exceedingly hot and the light so intense as to make one almost dizzy. We took out the collected herbarium material, which wasn't all dry yet, and gave it an airing—much trouble herbarium material causes on a journey!

"In Merv there is a pretty park, where tall specimens of poplars occur. I also saw there, for the first time in my life, fine, large specimens of Karakash elms. Very striking trees they are, with their umbrella-like shape and a dense mass of rather small foliage. These trees will be highly appreciated by our settlers in the desert regions.

"On Monday, June 13, there was a great market held in Merv. Turkomans, Afghanistanese, Kirghizes, and many other wild-looking inhabitants of these regions here mingled one with another. I bought some barley, millet, and wheat, but found little new.

THE CAMEL'S THORN OF THE DESERT

"The desert around Merv is quite interesting. The camel's thorn covers tens of thousands of acres of land. It was

THE INSPIRING MOUNTAIN SCENERY OF SHAN HAI KWAN, CHINA

Among the enviable things about the explorer's life are the scenes which his eyes are permitted to rest upon. A wonderful forest once covered the slopes of China's mountains, now denuded as the result of the lack of a forest policy.

in full bloom and its small pinkish-purple flowers, produced by the million, gave color to the landscape, just like the heath in northwestern Europe.

"This camel's thorn is a very useful plant here. First, it is a great feed for the camels, which are said to love this plant better than any other wild herb. Second, it is mown, dried, and used as a fuel. Nearly all of the bricks in the oases are baked through the heat of this plant. Third, it is a great sand-binder, growing even in pure, sterile sand, and being leguminous it prepares the soil by enriching it for better vegetation."

THE TRIALS OF THE TRAVELER

Writing from Chugutchak, Mongolia, the explorer says:

"Of the fourteen nights we spent *en route* I was under cover only four of them, and out of the other ten, one night we were disturbed by a wolf, two nights by rain, four nights by robbers prowling about, and the remaining three we made the most of.

"But on the whole it was not a bad journey, so far as personal comforts were concerned, for the sheep and goats had just lambed, and wherever we struck a Kalmuck or a Kirghiz settlement we were able to obtain a goodly quantity of either sour or sweet milk. The spring had really started and the cold at night was not very great. A few times our milk and tea froze overnight, but we are so hardened that we didn't suffer from the cold.

"We had serious trouble with the guides. I hadn't been able to obtain a man for the whole journey in Kuldja; so we took one from one village to another. The first four days it wasn't so bad, but on the fifth day, having entered a robber district, our Kirghiz guide deserted us and, worse than that, took with him the general letter of introduction with which he was supplied by the Chinese prefect

THE SEPULCHER OF CONFUCIUS

"The sepulcher of Con-fu-tse is surrounded by old trees," wrote Meyer of this sacred spot. "The large black trunk to the left belongs to an old male specimen of *Pistachia chinensis* which is several centuries old. The stems in front are *Juniperus chinensis.* This whole group exhales a spirit of the gray, hoary past, from which influence one cannot escape."

of Kuldja. There we were, without anybody knowing the roads and in a district considered dangerous.

"We marched according to a map I have and with the aid of a compass, and we finally reached a Kalmuck village, where I was received with great honors. The native chief had a special tent erected for me, killed a sheep, and was very friendly; and that was in the dreaded

Bogh-dolah, where the Kirghiz guides had told us that men are sometimes butchered like sheep for sacrifice. It seems those things did occur some twenty-five or thirty years ago, but now I hardly think anything like that would happen. In the days when Dr. Regel was botanizing here, strange things were reported; even the Chinese practiced human sacrifices in times of epidemics and famines."

FINDING THE FAMOUS PEKING PEAR

Here is a letter postmarked Peking:

"On December 29 we started from Peking, *en route* to the Western Mountains. On the way I secured some pictures of white-barked pine trees and some cuttings and seeds of a large Lycium. That night we slept in a temple in the mountains where it was pretty cold, as there was no fire in these airy rooms.

"The next morning a fine snow fell, but about one o'clock it cleared up and we got bright, cold weather. I utilized that time to get a lot of scions of the male and female pistache trees and had several men and boys at work to try to get a quantity of good pistache seeds, for most trees bore simply empty capsules.

"I paid many 20-cent pieces and got but few seeds. These are very hard to get, for they are small and have about the same color as the ground from which they have to be picked. Notwithstanding my offer of a Mexican dollar for a small linen bag full, the natives were not willing to do the job.

"The pistache is a fine shade tree, especially the male form, and for the mild-wintered regions of the United States it will be a nice acquisition.

"In a temple yard that same day I collected a quantity of scions of the Chinese horse-chestnut, which will probably be a good shade tree for the United States.

A ROW OF POPLARS IN CHILI PROVINCE, CHINA

The trees, planted along the edge of a field bordering a stream and trimmed up high so as to make poles, had a peculiar appeal for Meyer. They may have reminded him of some scene in Holland or of some Dutch painting.

POTS OF SOY SAUCE IN THE MAKING, COVERED WITH BAMBOO HOODS

The manufacture and consumption of this salty sauce in China and in Japan is comparable to the making and consumption of butter in Occidental countries. It is as universal in the Chinese dietary as butter in ours. The photograph shows a courtyard filled with jars in which a mixture of soy-beans, wheat, and salt is fermenting, and this mixture is protected from the sun and rain by cleverly woven hoods of split bamboo stems. Mr. Meyer made a careful study of this great soy-bean sauce industry and introduced a large number of varieties of the bean.

"The last day of the year found us on the road in search of the famous Peking pear, for which I have been looking ever since I came to China and for which fruit I made quite a few trips in vain.

"I didn't strike it until New Year's Day, but then my joy was great to start the year in such a nice way. I procured a whole lot of scions from this pear and from other varieties, and I would strongly recommend the Department to distribute every scion or bud not needed, and to give them to practical, successful growers only; for these pears will probably give us an entirely new strain of this fruit.

A HAZARDOUS MOUNTAIN JOURNEY

"The soil is rather sandy where these pears grow, and a short distance from the orchards it seems to be entirely sand. To prevent this sand from being blown away, the Chinese have planted long rows of small poplars. I send some cuttings of them; they may be of use in the United States for the same purpose.

"On January 2 we proceeded on donkey back to the mountains near Fang-shan. We had to proceed dismounted most of the time on account of the passes between the rocks, which were very steep.

"I had heard there were some nice specimens on an old imperial tomb in these mountains, but to my great disgust I found that the trees in question had all been cut down some years previously. Yet the trip wasn't in vain, for I found in these mountains the genuine wild peaches and apricots growing between the rocks. It seems that there are several varieties of these peaches. I send you herewith cuttings of three kinds, but doubtless there are more.

"Besides outdoor plants, the natives have hothouses constructed of sorghum

PEACH PITS FROM THE WILD PEACH OF CHINA

The wild peach of China is a species different from our cultivated peach. It grows on dry lands and lives where there is too much alkali in the soil for our fruit. The fifteen hundred pounds of pits shown in the photograph were imported into America, and there are now orchards on alkali soil in California, the underground parts of which are Chinese roots produced by these seeds.

stems heavily plastered with mud and with vertical paper windows on the south side only. They are heated by flues, and to keep the air moist large open vessels filled with water are placed at short distances from one another.

"In the forcing houses, also, large open vessels are kept filled with liquid night-soil, so as to promote a healthy growth. That the atmosphere in these places is far from being pleasantly odorous, one may imagine. To my amazement I saw forced cucumber plants with nice cucumbers hanging on them. If a young cucumber shows a tendency toward being crooked, the Chinese simply hang a piece of stone, tied to a string, on it and force it in that way to be straight. If we could only do this thing to crooked people, too!

CUCUMBERS AT 50 CENTS EACH IN CHINA

"I asked the price of these cucumbers and was told 50 cents apiece (Mexican). So this proves that Chinamen can afford to pay much for these luxuries. They do not grow their cucumbers in benches like we do, but have a few plants in a pot, first in a little soil, and when the plants get older more earth is added.

"They also had fine Pæonias, which were forced into bloom in the ground above the flues, and when in bloom they were planted in pots. They sell for 50 cents per bloom. They certainly looked fine.

"A totally novel industry was the forcing of onion sprouts. There was one house just chuck-full of these. The temperature inside was about 90° F., and I ate my lunch there and was treated to onion sprouts, tea, and forced young leaves of the 'tree of heaven.'

"Eight coolies, half naked, were working among the plants and a furnace was burning. The scent of the onions and the odors from vessels with certain liquids referred to, together with the heat, the novel food, and the change of tem-

A CLUSTER OF CHINESE HAW FRUITS

Every American boy who has lived where hawthorns grow knows that the fruits in this photograph are nearly, if not twice, as large as most of the American haws. They have the flavor of the wild haw, but are not so mealy in texture, and one becomes very fond of them as a fruit to eat from the tree, just as one does the crab-apple. Nobody in this country or in Europe has set out an orchard of haws. In China, on the other hand, the haw is a cultivated fruit; it is grown just as our apples are grown, on grafted trees. It is of a beautiful red and orange color, has a flavor characteristic of the haws, and when dipped in melted sugar or when made into jelly it is delicious.

perature while going from one house to another—it was about 20° outside—combined to produce an effect upon my constitution which made me feel far from well for a couple of days.

"While in search of more seedless persimmon orchards, we happened to strike a bleak region, and having eaten very little at breakfast, I got hungry at eleven o'clock. The first village we struck couldn't accommodate us, but the villagers said, 'One mile from here is a nice place to get food and tea.'

"We proceeded only to find out it was an absolute falsehood. These natives in turn said, 'About one and a half miles farther on you will find an inn.' And again when reaching that spot there was nothing to be found. The natives kept that game up until at last, at three o'clock in the afternoon, I came to a place where I could stretch out my cold, weary limbs on a brick bedstead with at least a nice fire underneath.

"I closed my doors rather hard, for I was disgusted and angry at this lying; but after having had a pretty substantial meal, I began to feel better and to think that the natives probably had deceived us to prevent our becoming discouraged at the thought of the long journey which was before us."

From Kang-ko, Korea, he sent this picture of customs and costumes:

"This Korean country is totally different from any other in the world. The people, for instance, are all dressed in white—some clean, most of them not, but still all are in white. In their houses the whole floor is heated, in most of them the year round. The entrances to the rooms are like windows, so small that one virtually has to crawl in.

"The food is totally different, too. Rice is the national food, and mostly it is a poor quality of red grain, boiled with some beans. Cucumbers are the most favored vegetable, and at one meal one gets them prepared in three or four ways—cucumber soup, salted cucumber, fresh sliced cucumber, and cucumber water. From a baby who is hardly able to walk, up to the old gray-haired men, everybody eats cucumbers, and preferably unpeeled.

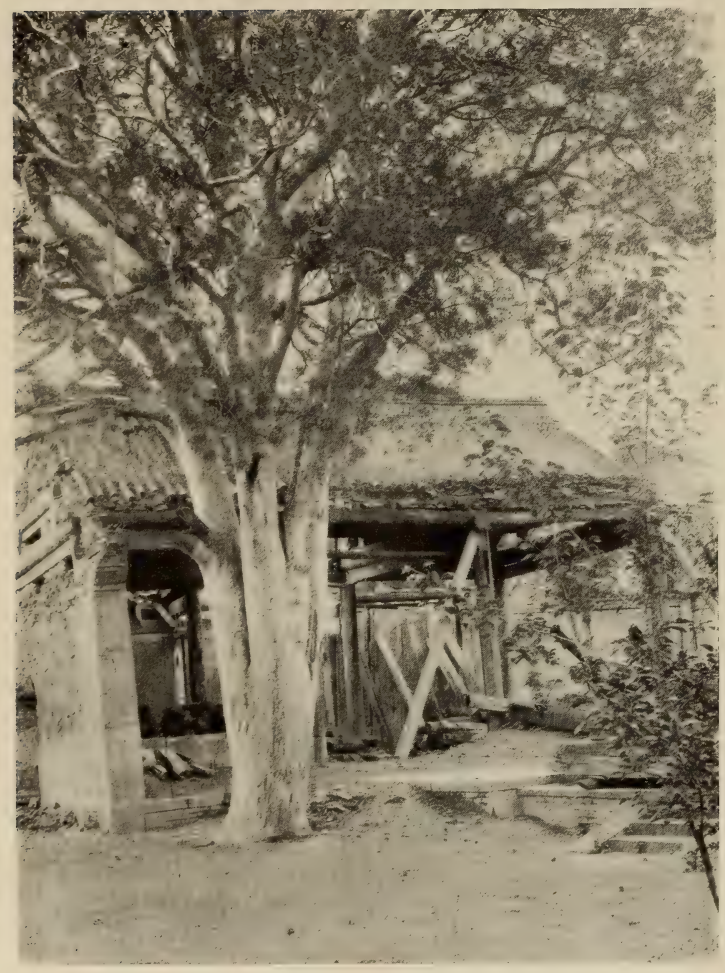
THE TAMOPAN PERSIMMON AS IT FRUITS IN CALIFORNIA

This Oriental persimmon which Frank Meyer introduced into America is worthy of the widest consumption. The fruits in the photograph, which were raised in California at the government plant-introduction garden, are three and and a half inches across and are seedless. They are of a deep orange color, with a characteristic deep groove around them, and when properly ripened they are delicious.

"Tea is unknown here; so the national drink is water. But now we come to a most interesting fact—they consume all their food and drinks out of *brass* bowls and cups; and there seems to be very little digestive trouble. How these people have come to learn the fact that copper is a good preventive for alimentary complaints would be worth finding out.

"Koreans all dress in clothes made of hemp fiber, and the material is hand-woven. Even their sandals are made out of the same fabric. The hemp is cut young, just before it comes to bloom, and the stems are placed in a closed clay oven and heated for some days. Then the bark comes off easily and with a little washing the fiber is ready to be dried and used.

"The main crops here in the north are sorghum in some varieties, small millets, wet rice, different varieties of soy-beans, maize, and buckwheat. The vegetables are cucumbers, pumpkins, chili peppers, onions, and a poor, weedy cabbage. Gar-



A WHITE-BARKED PINE TREE THREE CENTURIES OLD, NEAR PEKING, CHINA

Pinus bungeana, the white-barked pine of central China, as Meyer remarks, is "rather insignificant looking when less than a century old, but trees of 200 or 300 years of age are beautiful and serene enough to worship." Minister Rockhill expressed himself to Meyer several years before his death as wishing that he might rest under a white-barked pine. Thousands of these have been grown and sent out to parks, cemeteries, and private places throughout America. The contrast between the brilliant white bark and the dark-green foliage makes it a most striking landscape tree (see page 76).

den beans are also grown, mostly for the dry beans, though.

"Fruits are absolutely unknown. Here and there one sees a wild pear or a wild plum, but the natives do not cultivate any.

TOBACCO THE FAVORED PLANT OF KOREA

"A plant of great importance with the Koreans is the tobacco. They give it the best place in their fields, as the whole race is addicted to excessive use of the leaf. Some very large-leaved varieties are grown in this country, some of which I have never seen elsewhere. I haven't been able yet to obtain seeds of it, for these people live by the day. They don't have any seeds for a bad year or so—oh, no; let the day of tomorrow take care of itself! In agricultural seeds, too, they sow everything at once, and if some is left, mix it up with other seeds and eat it. The new crops are not ripe yet, so there are no seed to be had."

THROUGH PRIMEVAL FORESTS IN KOREA

In going to Hoi-ryong, Korea, Meyer relates that for many days he traveled through primeval forests, camping at night in log cabins which had been erected for the accommodation of hunters.

"These forests are splendid," he writes. "They consist mostly of larches, then follow spruces, then pines and lindens, birches, poplars, and gigantic willows, found in patches or as solitary specimens. The willows attain the same enormous size as the conifers—from 100 to 150 feet tall. I measured larches that had a diameter of four feet, five feet above the ground, and by counting the annual rings of some of the felled giants, I found that most of the trees are between 120 and 180 years old.

"Tremendous forest fires rage at times, and so we traveled sometimes for days through burned areas. A pitiful sight it is, but in these areas one can see the sun and the sky — a thing which is wellnigh impossible in the unburned forest.

"To explore the primeval forest is simply impossible. There is generally only one trail through it, and as soon as one leaves it he is in the entanglement of vines, fallen and dead trees, undergrowth, peat-bogs, mudholes, and heaven knows what else.

"Traffic is exceedingly light — some days we didn't see a single man or beast—and food is not to be found; neither is water, except at a few places.

"There is an awful gloom in these forests; birds are seldom seen or heard, and the quietude is almost oppressive. Even the drivers of the horses come under the spell of the solitude, and our caravan proceeded in silence, except for the noise of breaking branches of trees and the sound of the horses' hoofs touching rocks or tree stumps in the track. In some places a monarch of the forest had fallen across one's trail, and then we had to make wide detours to keep clear of it."

A PLANT HUNTER'S HAUL

How the packages of seeds and cuttings used to come in from Meyer. He packed them with great care, sewing each package in cloth, but the long distance and the rough handling generally tore the outer wrapping to pieces. This is part of a collection of rare specimens which Meyer made in Chinese Turkestan.

This is a letter from Tai an fu, Shantung, China:

"Yesterday I returned from a hurried trip to Feitcheng, bringing back with me eight grafted trees of the famous Fei peach.

"We had much trouble in getting these peaches, as the people demanded the most fabulous prices; for instance, $40 and $50 per tree. My interpreter, through some diplomatic dealings, got a plot containing eight trees for $40, but we had to leave Feitcheng hurriedly, because the relatives of the man who sold to him had not been consulted and they wanted to take the trees back or destroy them.

THE FIRST AMERICAN ORCHARD OF CHINESE JUJUBES (SEE ALSO PAGE 74)

There is something fascinating about the beginning of any new thing, and there attaches to this first orchard of jujubes a peculiar interest, as jujubes will possibly equal in commercial importance the Persian dates, which they so much resemble in taste. The trees are young, but it is a characteristic of the Chinese jujube to bear very young. Two-year-old trees are often loaded with fruit. To the orchardists of our common fruits almost the world over comes the dread of frost at blossoming time, but the jujube orchardist's trees do not bloom until May, long after all danger from frost is past in the localities where they thrive. This orchard was planned as a surprise for Meyer, but he never saw it. The orchard is two years old and located on the Plant Introduction Garden, at Chico, California.

Two of the trees are safely on the road to America now, however, and the others go with me tomorrow.

BEDLAM IN A CHINESE INN

"I cannot make up my accounts here, for conditions in the inn are too fierce to allow one to confine one's thoughts to such work," wrote the explorer from Chieh Chou, southwest Kansu, China. "Imagine an overcrowded inn, with merchants and coolies shouting and having angry disputes; with partitions between the rooms so thin as to make them almost transparent, with people gambling with dice and cards all night long; others smoking opium; hawkers coming in, selling all possible sorts of things, from raw carrots to straw braid hats from Szechuan, and odors hanging about to make angels, even, procure handkerchiefs.

"Here you have a picture of 'the best inn in town.' "

OPPRESSED BY LONELINESS

Occasionally, during the last year of his travels, a note of loneliness was sounded in his letters:

"Of course, this exploration work, with its continuous absence from people who can inspire one, gets pretty badly on one's nerves. One must be some sort of a reservoir that carries along all sorts of stores. Soldiers in the field have more dangers to face, but they get at least companionship and often recreation supplied to them.

"For about one month now I haven't seen a white person.

"My new interpreter is of the sponge variety—that is, absorbing all and giving back little or nothing—and this work of mine is very hard for the Chinese to understand anyway. They seem to consider it a silly thing to spend so much money for a few seeds or plants."

"Here I am sitting in a small hole of a town, all surrounded by high mountains, on which a slight snowfall has been deposited during the past night," begins a letter written from a place designated as six days' march west of Ichang, Hupeh.

"The flanks of these mountains are brown with withered vegetation, but here and there a tallow tree stands out as a bit of flaming red and purple; some scrub of *Rhus cotinus* (the native smoke tree) is blazing carmine and a few bushes of *Rhus javanica* (another variety of sumac) are of an indescribably warm hue of orange-red. The Indian summer is speeding to its close and soon winter will set in. I am trying to round up several things which we would have collected long ago had those wild pears not kept me down at Kingmen.

THE YANG TAO—GOOSEBERRY, RHUBARB, PINEAPPLE, AND GUAVA IN ONE

"A few hours ago I delivered to the local post-office here a small wooden box, made to order, addressed to the American Consul General at Shanghai, marked D. A. 29 and containing twelve fruits of the wild Ichang lemon and some fruits of a smooth variety of a native fruit called the Yang tao. How these fruits will arrive after their long journey in winter time I have no idea. It is only an attempt, like so much in life is.

"I am highly pleased with the Yang tao, and the more I see of it the more thoroughly convinced I am that it is a *coming fruit* for the southern United States.

"The fruits keep well into winter, and they ship well, especially after having been subjected to a few frosts. They are of excellent flavor, being a combination of gooseberry, rhubarb, pineapple, and guava. They have the habit of setting one's teeth on edge, just like pineapples and blueberries, and they are laxative!

"But the vines are not hardy. Where one finds them growing well, one notices coir palms, loquats, privets, and bamboos around the farmsteads. Zero temperatures may hurt them badly, I am afraid.

"The plants also will have to be grown like muscadine grapes—that is, on high arbors—and they might have to be bruised to make them bear heavily. In the wild state, at least, I noticed that plants subjected to strong mountain winds, which twist them around at times, bore much more heavily than those growing well sheltered.

"I am sure that in the rolling sections of the Carolinas, Georgia, northern Florida, etc., where loquats survive for ten

AN IMPORTANT MEYER DISCOVERY, THE CHINESE HICKORY TREE

Until Meyer discovered this Chinese hickory, near Chang Hua, in the province of Chekiang, no botanist dreamed that there was a hickory tree anywhere outside of the confines of the North American Continent.

A FRUITING BRANCH OF THE CHINESE JUJUBE

While the peach, the almond, and the apricot bloom in the early spring, the jujube waits until May, or even June, and thus escapes the spring frosts (see pages 59, 72, 75, and 76).

or more years, the Yang tao will do well, and of course in many parts of California it should thrive, too.

CUT OFF FROM COMMUNICATION WITH THE WORLD

"I wonder whether these parcels will ever reach you! I have not received mail now for a few months. Conditions here are as upset as ever; travel is nearly impossible, except by an occasional Japanese steamer. Food supplies are running low, fighting has occurred near and around the city almost hourly during these last weeks, and everybody feels depressed from this long-drawn state of suspense.

"The foreigners here have formed a defense committee, but, of course, a mere handful of white residents can do nothing against brigands in uniform, as nearly all of these Chinese soldiers are, and there are several thousands of the parasites around us. Last week I saw that some of these fellows took the hearts out of men whom they had shot, and mutilated the corpses in unspeakable ways. They are going to eat these hearts to get courage!

"Of late I have been assisting many of the foreign residents in changing their gardens and transplanting large and small trees. It took twenty-five coolies to remove one large tea olive—a thing never before attempted in Ichang. Should all of these various trees pull through, my work will be tied up with this city for a hundred years to come."

SOME OF MEYER'S GIFTS TO AMERICA

It would be inappropriate here to give a complete list of the hundreds of plant species and varieties which Meyer sent into this country. But when the roses bloom in New England, his *Rosa xanthina*, the hardiest of the yellow bush-roses, will be a mass of pale gold. When the ground thaws on the bleak plains of the Dakotas, thousands of his Chinese elms will put out their leaves and take their place in the wind-breaks of that treeless region. All the way up from Florida and Georgia and over the Canadian border this elm is now growing—a remarkably adaptable tree.

His ash from Kashgar will spread its branches over the alkali soils of Nevada. When cherries are ripe in California, his Tangsi cherry will be the earliest to ripen by a week or ten days.

The peach-growers of California are watching orchards now five years old, the trees of which all have for their root systems those of a wild Chinese peach which is resistant to drouth and alkali and which Meyer found was in common use as a stock by the Chinese.

As the autumn peaches ripen, the trees of the Fei peach will attract unusual attention, for it is the pound peach of the Shantung Province and bids fair to take a special place among the canning peaches of this country. It was so rare a variety, and living peach budwood is so hard to ship, that Meyer had to make two long special trips of several weeks on foot to get it.

In parks and cemeteries, wherever it will grow well, the globular-headed willow deserves to find a place, and the first specimens, now growing at Chico, California, and on the banks of Rock Creek Park, in Washington, D. C., are worthy of a special visit.

THE DELICIOUS JUJUBE

The curse of pear-growers is the fire blight, which often ruins the growth of years in a single season by killing the twigs and branches and even the trunk of the tree. Just how far the hardy Ussurian pear, sent to us by Meyer, will prove to be immune to this disease we do not yet know; but Professor Reimer, of Oregon, who is an authority on the subject, declares it is the most resistant of all the species of the pear genus.

Until Meyer brought back the grafted varieties of the Chinese jujube and we planted an orchard of them in California, the name itself recalled only the jujube paste of our fathers' time, which was used for coughs and colds. It bore no relation to the fruits, as large as good-sized plums, which, when processed, are as delicious as Persian Gulf dates (p. 74).

When the boys and girls go chestnutting and see with growing concern that their favorite chestnut trees are dying and realize that unless we do something theirs may be the last generation to have the pleasure of gathering these most interesting of all nuts, it may be a comfort

THE EXPLORER MEYER WITH A BRANCH OF JUJUBE IN HIS HAND

In 1906, when Meyer first saw orchards of this new fruit in China, he wondered if the trees would grow in America. He lived to learn that the trees not only would flourish, but would bear abundantly in this country, and he was gathering bud wood of all the horticultural varieties which he could find (see pages 72 and 74).

to them to know about the little Chinese chestnut trees which Meyer has introduced and which are very resistant to the chestnut-bark disease. While this Chinese chestnut will not take the place of the American chestnut as a timber tree, we may expect from it an abundance of good, sweet chestnuts.

MEYER'S SPINACH SUBSTITUTE

In our hot summers, spinach, that most popular of vegetables, does not grow, but Mr. J. B. Norton, through careful selection, has produced a strain, which he calls "Manchuria," from seed which Meyer gathered in Manchuria.

Guarding, as it were, the tomb of the great Confucius, stands a century-old tree of the Chinese pistache. In summer it casts a dense shade, and in autumn its scarlet foliage makes the landscape brilliant, like the oaks in the Berkshires. There is now an avenue of these superb trees forming the entrance to our Chico Plant Introduction Garden, and it has already begun to furnish ample seed supplies to plant the country (see page 64).

The white-barked pine, one of the most striking landscape trees of China, its brilliant white trunk contrasting with its dark-green needles, we have scattered by the hundreds through the drier regions of this country from large quantities of seed which Meyer secured. One of them is growing over the grave of the most enthusiastic plant lover of all of our diplomats, the late W. W. Rockhill, U. S. Minister to China (see page 70).

Imagine the old age which such a hunter as Meyer might have had when in place of fading memories of forest encounters he could put his hands upon the trunks of great trees grown from tiny seeds which he had collected in his travels as a young man, or see with failing eyesight the masses of flowers pro-

duced by shrubs and trees which he first saw on the mountain slopes of China!

To those who chase through life from one adventure to the next, heedless of whether they leave a trail or not, this may, perhaps, appeal but little; but to those who look ahead, imagining a better world here on this wonderful planet, the idea of having so definite and tangible a share in its enrichment must be very satisfactory.

While without the hearty support of a force of men and women who have cared for his introductions, Meyer's work would have been impossible, it is fitting that his name should stand out prominently, for his was the pioneer's work and it depended peculiarly on his individual initiative.

Meyer's life activities have ceased, and the real causes of his death will always be a mystery. He came to this country a Hollander, a gardener by profession; he became an American citizen and he has given to this land of his adoption a host of lasting benefits.

THE LAND OF LAMBSKINS

An Expedition to Bokhara, Russian Central Asia, to Study the Karakul Sheep Industry

By Robert K. Nabours

Of the Kansas State Agricultural College

With Photographs by the Author

SINCE time immemorial man has made use of the skins, hair, wool, and fur of animals to protect himself from the elements and for purposes of adornment. However valuable and universally used are vegetable substitutes, the clothing products furnished by animals are now demanded in larger quantities than ever before; so much so that consumption has overtaken production, and the situation for the future is considered critical by competent observers.

Especially is this true with regard to the production of furs; it appears that the advancement of civilization increases the demand, while at the same time it decreases the number of wild animals which, since time out of mind, have furnished mankind with this indispensable commodity.

As wild fur-bearing animals have decreased in numbers and the scarcity and prices of furs consequently increased, many individuals have been led to undertake the rearing of fur-bearers in captivity, as, for example, the efforts to breed foxes in Canada and parts of the United States, and the wide-spread interest in skunk-raising. It is of significance that in one State alone the game warden, within a period of two years, issued more than fifty permits for breeding skunks in captivity.

KARAKUL SHEEP AS A SOLUTION OF THE WORLD'S FUR PROBLEM

Attention has been directed recently to the ancient industry of Karakul sheep-raising to aid in restoring the equilibrium between the increasing demand and decreasing supply of furs. The pelts of the young lambs of this breed of sheep, because of their special qualities of warmth and beauty, appeal to persons of both sexes, old and young, of all stations in life and of all nationalities. There is, perhaps, greater possibility of restoring to mankind a supply of furs from this source than from any other.

Recently, through the generous coöperation of Mr. L. M. Crawford, ranchman; Dr. H. J. Waters, then president, and President W. M. Jardine, then director of the Experiment Station of the Kansas State Agricultural College, the author traveled in Russia, Bokhara, and other parts of Turkestan largely for the purpose of studying Karakul and other sheep.

On my first expedition to the East to study the Karakul, my Bokhara interpreter, a man of education and influence

FLOCK OF KARAKUL SHEEP GRAZING IN BOKHARA

The feeding of animals is a serious problem in a country where green fades from the landscape except in the brief spring that stands between piercing cold and cruel heat.

KARAKUL LAMB AND EWES: BOKHARA

The kindly shepherd vies with the soft-eyed ewe in caring for the wobbly-kneed youngster that is so soon to sacrifice his curly coat to some follower of fashion. Throughout the Near East there is a community of life and trust between the sheep and his shepherd which has been the theme of many a prose poem since the time when David, the shepherd boy, sang the song that has cheered the ages: "The Lord is my shepherd."

in affairs of trade, government, and religion, gave me cordial and enjoyable entertainment for two nights at his home in the oasis. During that time I did not secure a glimpse of any of his three wives or the older daughters among his seventeen living children. Our host informed us, however, that we were being duly scrutinized by his womenfolk, as well as by the neighbors, through "peepholes."

The women remained, for the most part, in the kitchens preparing food and tea and sending them out to be served to us by the boys of the family.

In order to converse with the native it was necessary to address, first, an English-Russian-speaking interpreter, and he, in turn, passed the message on through an interpreter who spoke Russian and the native dialect. The part taken by the native in the conversation would then come to me reversely through the same interpreters.

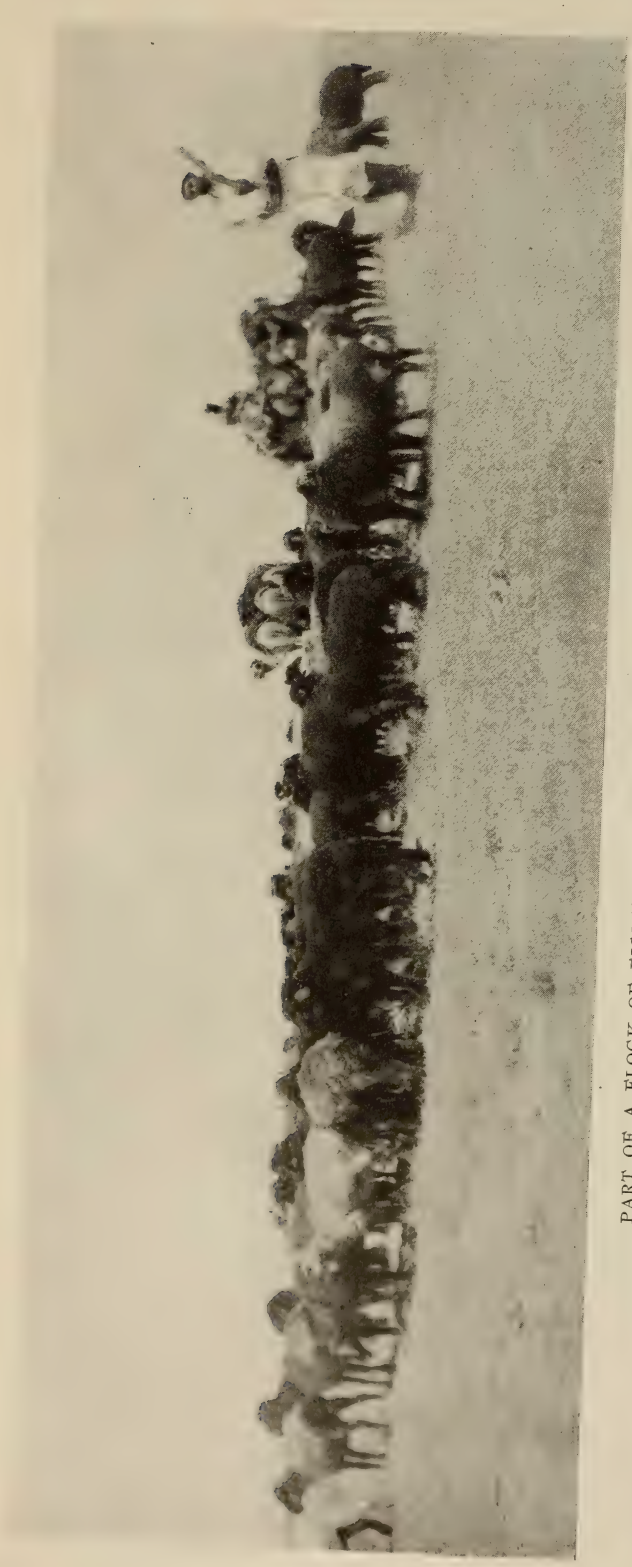
My conversation with actual breeders of Karakuls was confined, for the most part, to the owner of a flock of 800 who resided at the juncture of the oasis and desert steppes of Bokhara, where are found the outlying irrigation ditches, which during ordinary years contain water for only short periods—a situation that had forced this ranchman to move in and out at intervals and to depend upon wells continually.

On arriving at the headquarters of the Karakul sheep-owner, our party was received with kindly consideration, though with much curiosity and even suspicion, by the proprietor and two of his sons. However, as we sat on the rugs in his quarters, in Oriental style, with shoes removed, and drank tea, cordiality soon developed, and one after another of the men and boy attachés of the establishment joined the circle.

At first the conversation, carried on with great difficulty through the two interpreters, consisted of questions about sheep-raising, the taking of pelts and marketing, with the cautious replies; but as time passed, the situation became more mutual, till eventually the tables turned and they were quizzing me concerning affairs in my country.

NEWLY BORN LAMB: STEPPES OF BOKHARA

The pursuit of beauty too often leads to cruelty, and some of the methods of securing unborn lambs are quite revolting. Demand for objects of beauty, wholesale destruction, popular indignation, conservation, and scientific development—these are the stages through which the gathering of furs, feathers, and flowers has progressed. Now the acquaintance of even the fearsome skunk is cultivated in order that beauty may be perpetuated.



PART OF A FLOCK OF EIGHT HUNDRED KARAKULS: STEPPES OF BOKHARA

Although Turkestan is crossed by several large rivers that once formed a garden of loveliness, the steppes are now left to sheep and camels which can find life where other animals would die of hunger and thirst. Yet the most luscious of melons and the finest of lambskins come from the same town in Bokhara.

At noon we were served with a sumptuous feast of delicious, well-cooked Karakul-Kirghiz mutton, with the very palatable Tatar bread, and sheep milk for those who desired it, and always tea.

THE KARAKUL FLOCK AND ITS PANICKY SHEPHERDS

After the feast we went out on the steppes through a terrific sandstorm and fierce July heat, over shifting dunes, where vegetation was conspicuous largely by its absence.

Here we found a considerable flock of Karakuls in care of two shepherd boys so ignorant and so terrified by the presence of westerners that only extreme devotion to their sheep kept them from running away. In fact, when they first saw us approaching the flock was started off in such haste and driven so rapidly that the sheep and the boys were brought to a standstill only by great exertion on the part of some of the men, who, fortunately for the object of the excursion, were on horses instead of camels.

So panic-stricken were these boys, or young men, that it was some time before we could calm them and secure their cooperation in corralling, sorting, and

otherwise assisting in the study and photographing of the animals.

While the inspection was in progress a lamb was born, the hair being a splendid type of Persian lamb, with beautiful black luster and tight, even curl (see page 79).

As an illustration of the close personal attention the lambs receive till they are able to care for themselves, the ewe and one of the shepherds seemed to vie with each other in attending this helpless arrival. The flock drifted away and the lamb was unable to travel, so the ewe and shepherd remained, and finally the boy gathered it in his arms and came on up with the crowd.

These shepherds, although extremely ignorant, especially in any civilized sense, and living the lives of the sheep night and day for months at a time, are said to know the members of their flocks individually and the parentage of each sheep, even among large numbers.

INTERBREEDING OF KARAKUL AND KIRGHIZ SHEEP

Since numbers of the ewes of the fat-rump Kirghiz mutton sheep are yearly placed among the Karakul flocks for the purpose, as related by the owner, of keeping up the vigor, and since no written records are

A YOUNG KARAKUL RAM ON THE STEPPES OF BOKHARA

A KARAKUL RAM IN BOKHARA

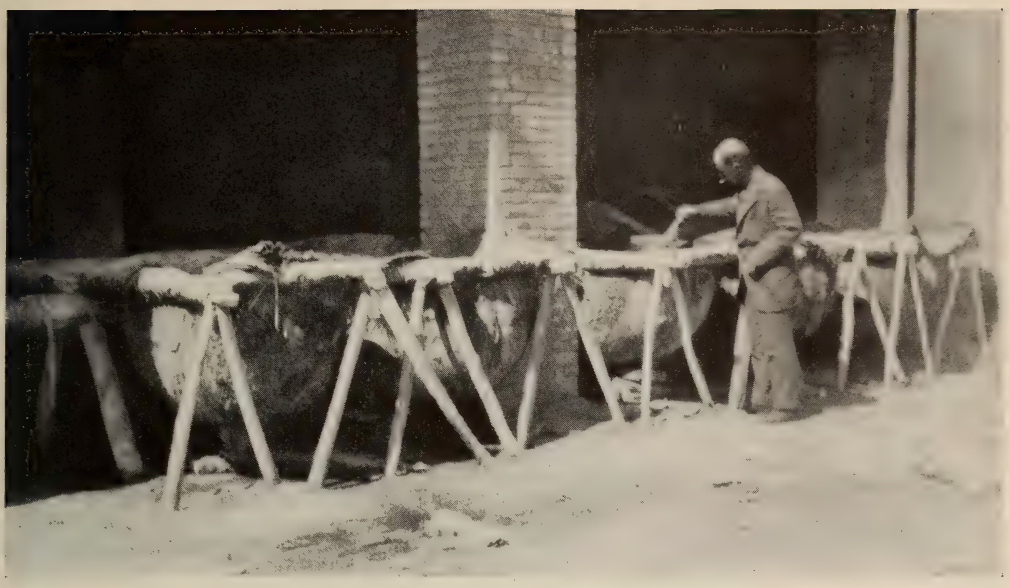
Curiosity is a passion stronger than fear in many cases, and the timid Sarts and Bokharans who first fear the camera man soon bring their dearest possessions to him in order to have them photographed. The story current in many parts of the East that camera lenses are made from the eyes of murdered children may explain why many a fond mother protects her infant from the recording eye of the kodak fiend.

KIRGHIZ, OR FAT-RUMP, SHEEP OF CENTRAL ASIA (SEE PAGE 83)

In Syria, where the fat-tailed sheep are fed by hand, the fat of the tail forms the basis of some of the most delicious and indigestible pastries, and the tail develops until it touches the ground, and sometimes is so heavy that it must be supported by a trailer on wheels.

HOSPITALITY IN THE HOME OF A WEALTHY BOKHARAN

The host, on the right, owner of 800 Karakuls, spoke to the native dialect-Russian interpreter, holding the fan, who communicated with the author through the Russian-English interpreter, who is taking the photograph. Questions and responses went to the host through the same channel. Some one has spoken of talking through an interpreter as "compound fracture of speech, followed by mortification."



SKIN VATS FOR CURING KARAKUL SKINS: BOKHARA

Salt and barley meal are mixed with water to form the curing bath for the precious lambskins that will later form the fashionable fur collar. It takes two weeks to cure a skin before it can be rinsed and dried. Even after months of use, these sheepskin vats are still soft and pliable.

retained, the observations and memory of the shepherds must be depended upon for knowledge of the grade of any individual.

These Kirghiz sheep, fat rumped and tailless, and producing no fur, reach an extraordinary size, some of the largest weighing as much as 400 pounds. Their flesh is of excellent quality and remarkably free of the often objectionable "muttony taste" of western sheep. An edible fat is the principal component of the huge rump, which weighs many pounds and, when cooked, is used as a substitute for butter.

Although undoubtedly shepherd boys do have remarkable memories of a kind, which is probably the main stock of their intellectual equipment, and their knowledge of the parentage of any particular Karakul is to some extent employed in the selection of breeders, my host stated that the breeding males and, to a less extent, the ewes to be bred are selected almost exclusively on the appearance of their fur at birth. The retention of an individual in the flock, especially a male, depends upon the value of the pelts of his progeny.

There does not appear to be any well-defined Karakul breed with precise standards, as among English and American sheep. The full-grown animal varies greatly in size, from quite small to medium, with black face and legs. The fleece of the adult sheep is long and coarse, the outside usually gray, and those with the least underwool are preferred. As a rule, the Karakul is inferior in conformation to the well-known breeds of English and American sheep.

The male lambs, except those to be reserved as breeding rams, are killed at birth or soon after and the pelts taken. If the pelts are not secured when the lambs are very young, the hair loses its curl and luster. Most of the ewe lambs of all grades are reserved for breeding purposes.

Baby Karakul is obtained by the killing of old ewes just prior to the birth of what would probably be their last lambs, and especially if they are believed to carry twins.

Some of the methods of obtaining lambs just before birth are quite revolting, such as running the ewes, at the proper stage of pregnancy, up and down steep inclines or actually beating them, in order to cause abortion.

Karakul sheep are found almost exclusively in the emirate of Bokhara, Russian Central Asia (Turkestan).

CARAVAN OF HIDES AND KARAKUL SKINS ARRIVING AT MARKET: BOKHARA

All camel trails in the Emirate of Bokhara, like the roads to Rome, lead to the market-place in Bokhara City, where furs are bartered for shoes, camel trappings for green tobacco, and rugs, whose beauty is destined to grace the home of wealth, for gaudy bead necklaces. The market-place at Bokhara is one of a vast chain of world stores where the native product is bartered for the exotic novelty—one link in the bond that is fast binding the peoples of the world through taste for a universal bill of fare.

HIDE AND KARAKUL SKIN BAZAAR

The same hot sun of the desert that acts as a mordant for the lovely dyes of the rug-weaver serves to perfect the pelts that are shipped from Bokhara to all parts of the world. From here the pelts were formerly shipped to the great fall fair at Nizhni Novgorod, on the upper Volga, but more and more the buyers are dealing with the producers in Turkestan itself. Priceless treasures piled in dusty squares and almost ignored by those who depend upon their sale for livelihood—that is one's fleeting impression of a Bokhara market.

WASHING KARAKUL SKINS: BOKHARA

Karakul lambskins are commonly seen in the United States and Western Europe in the form of overcoat collars, overcoats and wraps, and, more rarely, muffs, neck pieces, and caps. The skins are divided into several classes: Persian lamb, broadtail, Astrakhan, Shiraz, Bokharan, and Karakul lamb. The term Astrakhan is best known, and once included all sorts, from the flat, glossy broadtail, rippling beneath the hand like watered silk, to the heavy skins of cheaper grade whose curl is loose and coarse.

A WAREHOUSE OF KARAKUL SKINS: CITY OF BOKHARA

In Baku, in the spring of 1918, a good Karakul skin was worth two hundred rubles. The rich Tatars use this skin for their *papachs* and officers used the lighter grades for trimming their military overcoats, which were lined with sheepskin. In the Orient priceless treasures are obscured behind mud walls, and furs that are the envy of the followers of fashion are handled in the same impersonal way the bank cashier handles money.

LINCOLN AND COTSWOLD EWES, WITH THEIR HALF-BLOOD KARAKUL LAMBS, ON A KANSAS RANCH: OWNED BY MR. L. M. CRAWFORD

Karakul rams have usually been mated to ewes of American breeds, since size and stamina are not common in thoroughbred stock. But quality rather than size is desired in the lambs, many of which are still-born. Glove linings and opera-coat trimmings are made from the smallest skins. Mongolian lambs are creamy white in color and the curl of the hair is loose and soft, quite different from the delicate, glossy black skins of the broadtail variety.

"Elsewhere the light descends from above; in Bokhara it radiates upward," tradition gives as among the last words of Mohammed as he was being translated to heaven. Between the ninth and fourteenth centuries Bokhara was the gathering place for the most studious men of Asia. It still has nearly a hundred colleges where students learn to read the Koran, and there are more than 300 mosques. It remains a center of Islamitic learning, though greatly diminished within recent years. The observer is impressed with the dignity, reserve, and conservatism of the men. The women when out of their abodes are invariably heavily veiled.

A more unfavorable situation for raising live stock can hardly be conceived than that encountered in this region. Grass, to any extent, is available only from the first of March, soon after the winter breaks, till the latter part of May.

A HAPPY, PRIMITIVE PEOPLE

On the journey from the city of Old Bokhara to the steppes to study the Karakul sheep, across the Zerafshan and its innumerable tributary irrigation ditches, one encounters a considerable population of apparently satisfied and happy people, engaged for the most part in intensive agriculture.

All work is carried on in the most primitive fashion and with hand-made instruments of the kinds dating back thousands of years. One sees during the day horse, camel, or man-motived wheels raising the irrigating water from one level to a higher, the cutting of alfalfa with hand scythes and transporting it on the backs of donkeys, the reaping of grains, also by hand, and threshing with flails or by the tramping of goats, camels, and donkeys, and winnowing in the manner of Biblical times.

Slow-moving, crude water-power mills on the main canals clean the rice and grind the grains. Occasional small flocks of sheep and goats, chaperoned always by some one, usually an old man or boy, even when there are only two or three, are seen grazing on the banks of ditches or vacant small fields.

For many years the Russian Government kept several of its best engineers engaged in devising means of extending the irrigated areas as far as the available water allows. At the outbreak of the war this work was making good progress and considerable areas were being added to cotton culture.

A beneficial influence was being exercised on the agriculture of Turkestan through the Department of Agriculture at Tashkent, an excellent general experiment station and the special dry-farming station, both located near Tashkent, and a Karakul sheep-breeding station, near Samarkand.

The semi-official Turkestan Agricultural Society was performing valuable services to the country in studying soils, climate, crops, introducing modern appliances, and improving the markets. I have never become acquainted with a more intelligently active body of men.

So far as could be observed, the administration of the country was highly beneficial. The Russian railways afforded transportation for exports and imports, and although the natives were badly cheated by the Western traders, many of whom were entirely without business ethics, their produce at least brought them something, and they were enabled to purchase many necessities—a situation undoubtedly greatly improved over the times prior to the Russian occupation.

Whatever may be said of the shortcomings of the former Russian Government (and most that I have read and heard about it does not coincide with my observations), it appeared that the natives were being aided in many ways and under very great difficulties, with the least possible disturbance of their religion and customs.

It must be remembered that, as in case of most of their own races with whom the Russian officials had to deal, these people are extremely ignorant and at the same time excessively conservative. It is not claimed that conditions were ideal, or ever promised to become so, but they were greatly improved and showed promise of still further betterment.

Fifty-four head of Karakul sheep, mostly rams, have been brought from Russia to America since 1909 by Mr. C. C. Young. These and their offspring

A KARAKUL LAMB NEWLY BORN IN KANSAS, SHOWING BEAUTIFUL GLOSSY CURL

have been distributed widely over the United States and Canada, and the rams have been largely mated to ewes of American breeds. Marshall estimated that in 1915 the flocks owned in Texas, Kansas, and New York numbered 1,000 head of grades having one-half or three-quarters Karakul blood and 60 head of the pure Karakuls.

Since then the numbers have certainly increased, and some very high-grade individuals have been produced. But it will be necessary to import a number of new animals in order to get the industry properly under way.

It is also desirable that some of the fat-rump, tailless Kirghiz sheep (see page 83) should be imported, since the successful production of Karakul skins in Bokhara is undoubtedly connected with, if not entirely dependent upon, the use of the large and vigorous Kirghiz ewes.

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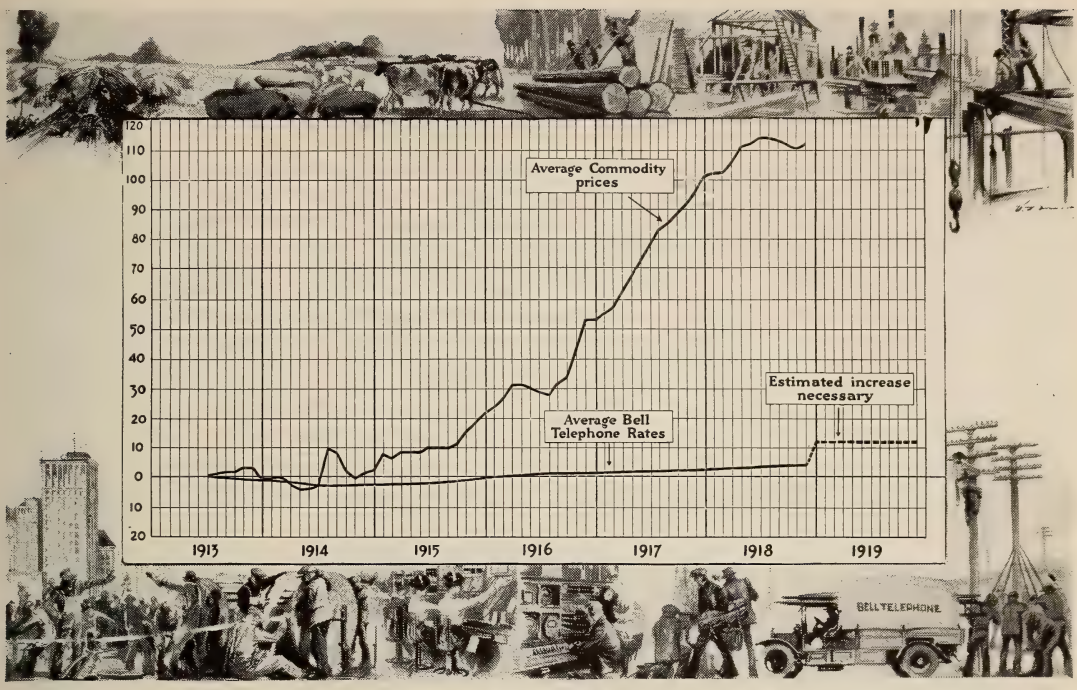

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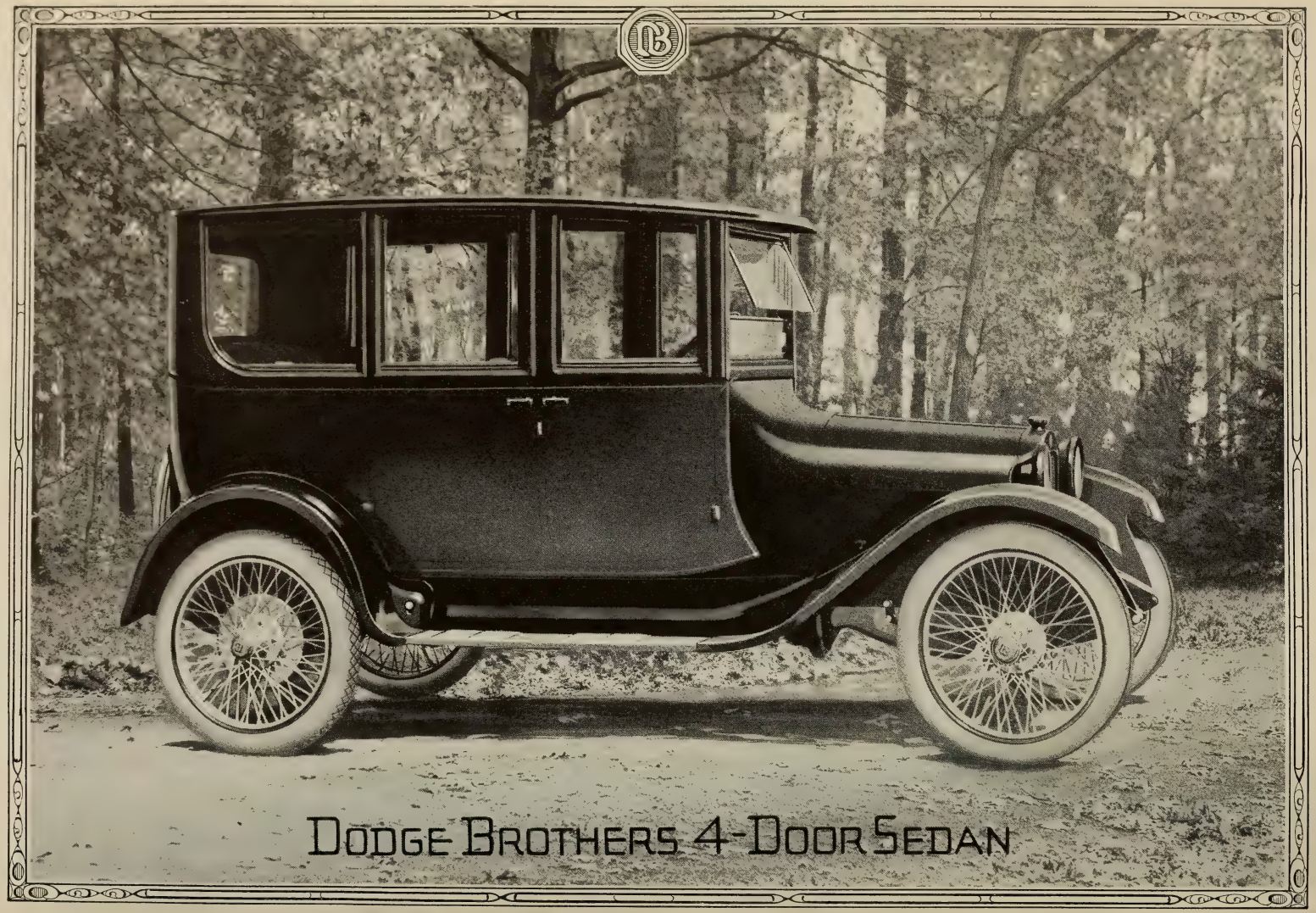
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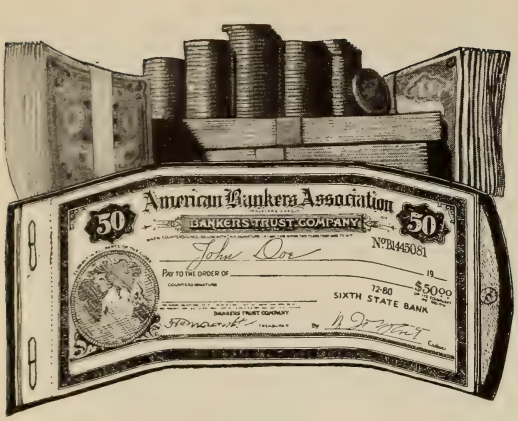

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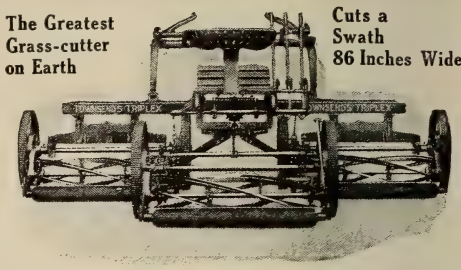

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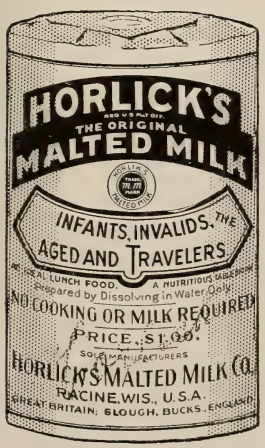

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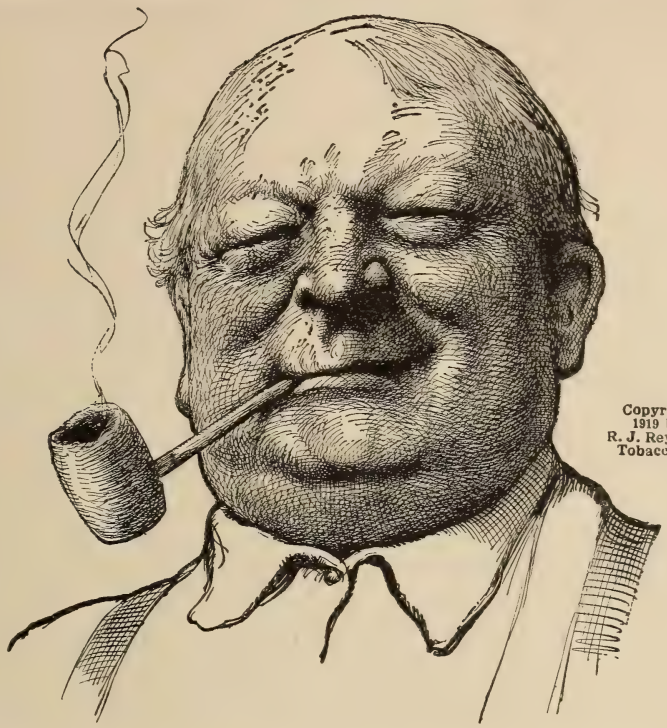

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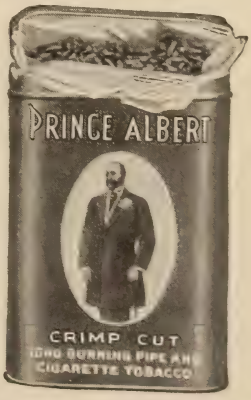

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VOLUME XXXVI NUMBER TWO

THE NATIONAL GEOGRAPHIC MAGAZINE

AUGUST, 1919

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To carry out the purpose for which it was founded thirty-one years ago, the National Geographic Society publishes this Magazine. All receipts from the publication are invested in the Magazine itself or expended directly to promote geographic knowledge and the study of geography. Articles or photographs from members of the Society, or other friends, are desired. For material that the Magazine can use, generous remuneration is made. Contributions should be accompanied by an addressed return envelope and postage, and be addressed: Editor, National Geographic Magazine, 16th and M Streets, Washington, D. C.

Important contributions to geographic science are constantly being made through expeditions financed by funds set aside from the Society's income. For example, immediately after the terrific eruption of the world's largest crater, Mt. Katmai, in Alaska, a National Geographic Society expedition was sent to make observations of this remarkable phenomenon. So important was the completion of this work considered that four expeditions have followed and the extraordinary scientific data resultant given to the world. In this vicinity an eighth wonder of the world was discovered and explored—"The Valley of Ten Thousand Smokes," a vast area of steaming, spouting fissures, evidently formed by nature as a huge safety-valve for erupting Katmai. By proclamation of the President of the United States, this area has been created a National Monument. The Society organized and supported a large party, which made a three-year study of Alaskan glacial fields, the most remarkable in existence. At an expense of over $50,000 it has sent a notable series of expeditions into Peru to investigate the traces of the Inca race. The discoveries of these expeditions form a large share of the world's knowledge of a civilization which was waning when Pizarro first set foot in Peru. Trained geologists were sent to Mt. Pelee, La Soufriere, and Messina following the eruptions and earthquakes. The Society also had the honor of subscribing a substantial sum to the historic expedition of Admiral Peary, who discovered the North Pole April 6, 1909. Not long ago the Society granted $20,000 to the Federal Government when the congressional appropriation for the purchase was insufficient, and the finest of the giant sequoia trees of California were thereby saved for the American people and incorporated into a National Park.

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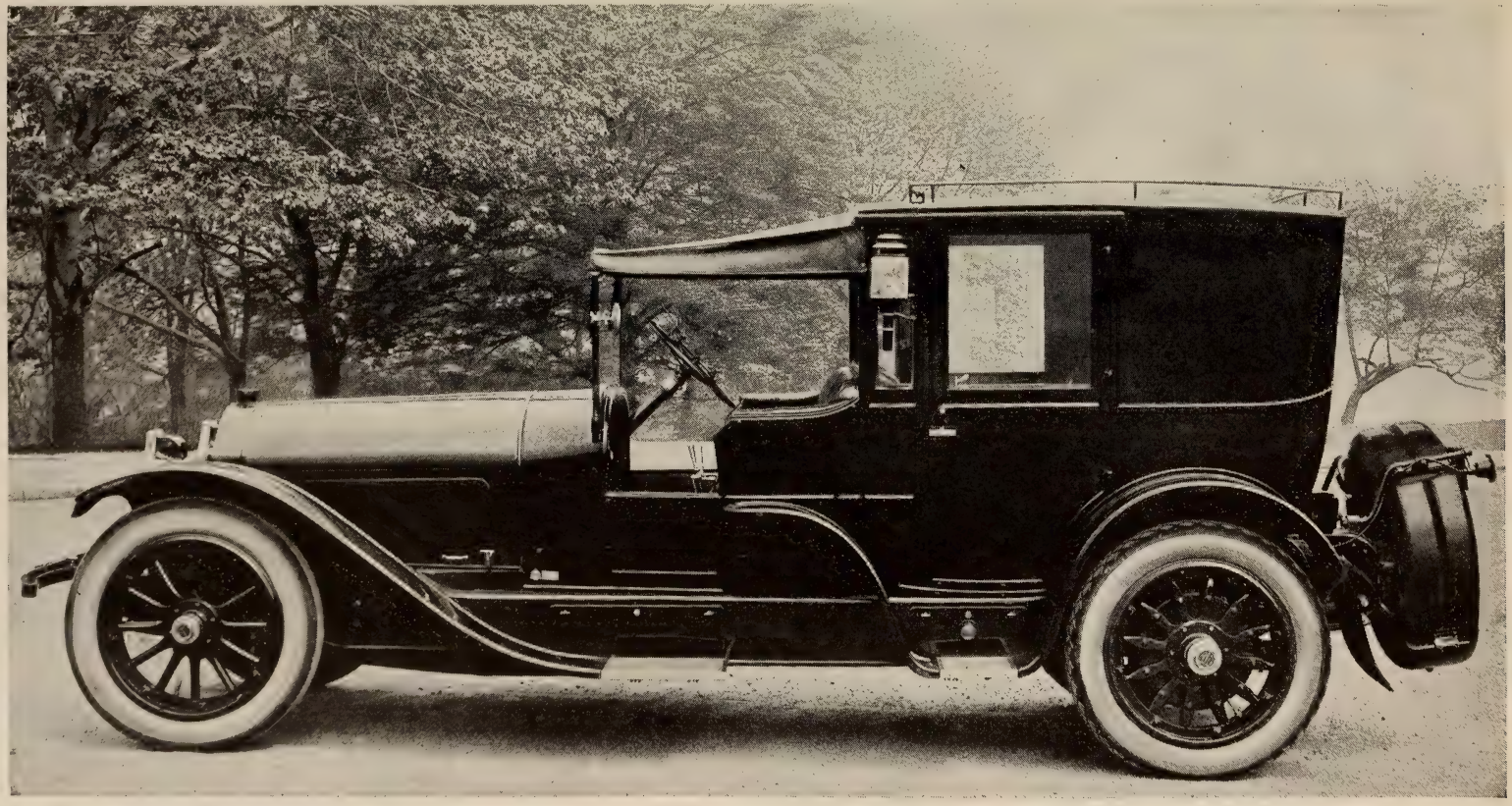

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Sub-topic: Monuments

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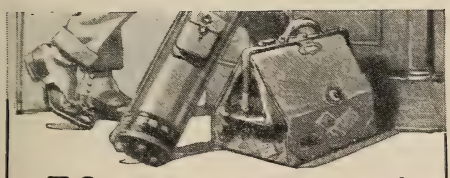

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VOL. XXXVI, No. 2 WASHINGTON AUGUST, 1919

THE NATIONAL GEOGRAPHIC MAGAZINE

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THE GEOGRAPHY OF GAMES

How the Sports of Nations Form a Gazetteer of the Habits and Histories of Their Peoples

BY J. R. HILDEBRAND

A CURIOUS paradox: the maddest war men ever fought has had a tendency to turn the world to simple, wholesome play.

Your Englishman no longer makes excuse for the time he spent at the bat or in the saddle. Centuries of cricket, tennis, and riding to the hounds fortified his home land in time of terrible stress. Some five million Americans, many of them snatched from desk and counter, are pouring back, having sensed the tang of open sky and outdoors while playing their games, football to ping-pong, behind the lines, as they waited to get into the biggest game of all.

And other men from every clime—black, yellow, and tan—carry home the games they saw these sturdy Britishers and wiry Americans playing. The French played, too—played in a way peculiarly expressive of their national temperament.

GAMES A KEY TO GEOGRAPHY

Note the reverse of the picture. Germany, with clanking armor and unsheathed sword, gone stale from overtraining for the fight she picked, may find in her neglect of play one reason for a colossal failure at arms and her maladroit diplomacy.

Sports and games ever were magic touchstones to geography and to those allied sciences which provide the surest clues to how peoples live, and work, and think.

In countless ways science has learned about climates, and products, and customs, and peoples of the past from toys, games, and sports. An entire new field of investigation was opened by the discovery that backgammon, as played in Burma, also was known to the pre-Columbian Mexicans.

A new light is shed on an ancient civilization when we learn that there was a law among the Persians by which all children were to be taught three things: horsemanship, shooting with the bow, and telling the truth.

Carthaginians and Phœnicians owed something of their maritime glory to a love of swimming, the sport by which they first mastered their fear of the sea. One wonders whether the more rapid strides made in England toward the political emancipation of women may not be traceable to the ardor of British women for outdoor exercise and sports.

Equally significant in the history of nations is the decline of their sports. While the Persians observed the rigid regimen of the chase, as prescribed by

BEFORE KINGS CLAIMED VOCATIONAL EXEMPTION

Assur-bani-pal was the William Hohenzollern of Assyria six centuries before Christ, and so mighty was his "kultur" that kings of hapless Belgiums of that time sacrificed their daughters to his harem as peace offerings. In his quest for more Assyrian room under the sun he drew his own bow and arrow, for "safety first" had not yet become the motto of war-breeding monarchs.

Cyrus, their armies were victorious. While Spartan youths followed the rigorous discipline of Lycurgus, their city was inviolate. Led by Alexander the Great in ways of abnegation and exercise, the Macedonians were invincible. The Romans extended their civilization so long as their gymnasia prepared youths to endure long marches and bear crushing burdens.

CLIMATE DETERMINES THE KIND OF GAMES WE PLAY

It is fairly obvious that coasting is a sport of the zone where snow falls, and reasonable that those peoples most generally proficient in swimming should be found in the equatorial islands, where limpid waters invite surcease from the scorching sun, but less well known, perhaps, that card and board games developed in southern Asia, where zest for play is just as keen, but temperature dampens the ardor for exertion.

The reactions of geography and sport are mutual. To the Netherlands are traced the stilt and the skate, which even yet have their work-a-day use in flooded and frozen areas, but are playthings for the rest of the world.

The Governor of Namur once made an oracular promise to Archduke Albert of Austria that he should see two troops of warriors who fought neither on foot nor horseback. The Archduke was so impressed with the giantlike soldiers on stilts that he exempted the city perpetually from duties on beer. Norway had a "regiment of skaters" and Holland's soldiers were taught to drill on ice.

THE CHILDREN'S CRUSADE

Sometimes sports spread beyond national boundary lines and express the common ideals of an age. Thus the tournaments of the middle ages were the normal symptoms of the adventurous spirit reflected in the quests for the Holy Grail. In that period, too, was a striking, if pathetic, illustration of the imitative spirit which translates the serious business of adults into sport for children.

In Franconia and Teutonia thousands of boys, some only six years old, hoisted banners bearing the Cross and started for Jerusalem. Some turned back at Mayence, some went as far as Rome, but of the multitude that went out on this play expedition few returned.

Games invariably adapt themselves to the individual need for a balanced life, mental and physical. This fact was illustrated by comments of civilian writers in the war zones, who told how Englishmen and Americans sought diversion in active play, while Frenchmen relaxed in more quiet fashion—smoking, reading, or day-dreaming by the side of a welcome fireplace. Many noted this as a contradiction, in view of the supposed sprightly temperament of our Gallic cousins.

But a sporting writer, in an article printed years before the World War, relates how, "unlike his English counterpart, who seeks his relaxation by attending a football match and mauling the umpire when he does not approve of a decision, the workingman of France repairs to the comparative solitude of the 'jardin de l'arc' and there practices the peaceful sport of archery"; to which the writer appends this illuminating comment: "Probably this is typical of their different natures. The Englishman, phlegmatic during his work, seeks excitement as a relaxation, while the more animated Gaul needs quiet during his leisure."

IN THE AGE OF PERSONAL COMBAT

Just as the individual adopts games which meet his bodily need, so it seems that national pastimes are modified to foster and fortify the peoples who play them.

In the age of personal combat there were men like Milo of Crotona, a veritable Samson, reputed to have been able to break a cord wound about his head by swelling the muscles; or Polydamas of Thessalia, said to have slain an infuriated lion, and to have been able to hold a chariot in its place while horses tugged at it.

Those were the times when boxing and wrestling, most ancient of sports, were in their heydey, though they were not always gentlemen's diversions, reck-

Photograph from Lehnert & Landrock

PLAYING THE WORLD'S OLDEST GAME OF CHANCE: NORTH AFRICA

"Rolling the stones" is an expressive and historically correct bit of slang. Gambling on the turn of pebbles is prehistoric and made dice were ancient, if not always considered honorable, implements of play when Mark Antony gamed with them in Alexandria while he waited for Cleopatra to "be ready in just a minute," and when Caligula enlivened the playing by using the loaded kind. Only the scorching sun molests the "crap-shooter" of the desert lands, and this quiet street through an oasis affords shelter from such interference.

A BATTLE OF WITS: HOLLAND

The Chinese have a tradition that an emperor invented cards to amuse his concubines; but they generally are attributed to Egypt or India and are thought to have been suggested by chess, reckoned the oldest game in the world. Like the modern game of "authors," card games in medieval Europe were educational, and sets were made by monks for teaching geography, logic, and grammar.

Photograph by J. Perestrello

THE NATIONAL SPORT OF SPAIN, IN WHICH THE MATADOR SUPPLANTS THE GLADIATOR OF THE ANCIENT ROMAN ARENA

"Bread and butter," says the American, to express the ultimate necessaries; "pan y toros," says the Spaniard, meaning "bread and bulls." By edict of Carranza, bull fighting has been abolished in Mexico, and the magnificent stadium in Mexico City, seating 18,000, has been converted into an open-air opera house. Despite attacks like that in the novel of Ibanez, having a popular vogue here since its translation, the sport introduced by the Moors and perpetuated by Charles V and Philip IV, both amateur matadors, persists in Spain. More than 200 towns and cities have their plaza de toros, varying in size, but alike in two features, a hospital and a chapel, where matadors receive the sacrament before entering the ring. More than a thousand bulls of high breed are killed yearly; many others are injured or discarded.

GYPSIES OF SPAIN: THE LAND WHERE FOLK ARE KNOWN BY THE DANCES THEY DO

The Italian must sing, the Englishman must hunt, the Spaniard must dance. Small wonder that one traveler observed that every Spanish girl is bitten by a tarantula. Surprising, though, that the vogue of Spanish dancing only recently captivated the New World. Every Spanish city has its own dances. The stately "La Muniera" is as characteristic of northern Spain as is the broad "a" of the American Yankee; the vivid, colorful "Sevillana" is ready identification of the Sevillian.

AN ABORIGINAL CEREMONY, "SPEARING THE ALLIGATOR": AUSTRALIA

"Hit the Neapolitan on the head and get a five-cent cigar," the circus barker's raucous invitation, is but a latter-day echo of this primitive sport. The pastime illustrates how savage tribes adapt their industry of the hunt to serve for play.

FIJIANS DOING A CLUB DANCE

In this land where wives were buried with their husbands before civilized restraints were imposed, and where cutting off a finger still is a common sign of mourning, these most cruel and barbarous of the South Pacific islanders show a human love for song, dance, and story-telling. Their famous club dance is a martial exercise, with a low comedy motif, and the costumes of the picture are supposed to be extremely clownish.

oned by modern standards. Homer described the set-to between Epeus and Euryalus, wherein the latter was carried away, insensible, "his legs hanging powerless, his head dropping on his shoulder, and dark blood flowing from his mouth."

Even that combat was mild compared to the fistic encounter of Kreugas of Epidamnus and Damoxene, an historic "heavy-weight slugger" of Syracuse. Kreugas landed a hammerlike left on his opponent's pate, but Damoxene countered with a mighty clout of his right to his adversary's stomach. His nails were long and his hand bound with thongs. It is recorded that the Damoxene terror's fist "sunk into the entrails, pulled them forth, and scattered them upon the arena, the poor wretch, of course, dying on the spot."

When missile-throwing became the technique of warfare the Italian city

© A. R. Gurrey

RIDING THE SURF AT HONOLULU, HAWAII

Walking a tight rope stretched on top a speeding express train might afford some of the exhilaration of Hawaii's distinctive sport. Here, again, geography molded the national pastime; for the conformation of the ocean bed along the island coast creates the swells that make this sport popular. The picture illustrates only one position of the native rider, who lies prone, sits, and even stands on his head on his super-canoe.

Photograph by Perkins

TWO FISHERMEN AT KEALAKEKUA BAY, HAWAII, WHERE CAPT. JAMES COOK DISCOVERED THE ISLANDS IN 1778

Photograph by Harry F. Blanchard

KNUCKLES DOWN!

youth reduced stone-throwing to a fine art, and in winter made use of snowballs on fête days. In Perugia as many as 2,000 would engage in this game. Defensive armor was worn, but many fatalities resulted. Mothers and wives protested, it is safe to assume; but there, as in Sparta, heed to feminine counsels was held to be unmanly.

Old English statutes furnish evidence of the encouragement of archery, and the reason therefor may be found in the fact that the Battle of Hastings saw the Saxons panic-stricken at the effective use of the longbow by the Normans, although later, at Poitiers and Agincourt, Englishmen won lasting fame by their employment of that weapon.

Charlemagne sought to popularize archery; Edward III forbade all other sports on holidays and Sundays, thus making the pastime subserve universal military training.

BY THEIR PLAY YE SHALL KNOW THEM

It almost seems as if by a people's sports you shall know them. Taine thought literature was a sure criterion. But literature is not always precisely expressive, because it may become overselfconscious under the influence of a Dryden; or it may bend to winds of fashion, driving a Shaw to preach sociology in plays and a Browning to teach philosophy in verse; and nearly always it seeks out the exceptional, sometimes focusing a people all awry, as if heroic France were to be adjudged through some of her erotic fiction.

Play is more spontaneous. There is a wealth of suggestion in the fact that bullfighting in its most cruel form was an obsession in the years when the Council of Blood was making revolting sport of human life in the Netherlands. Charles V, by no means a robust monarch, felt called upon to celebrate the birth of his son, Philip II, by slaying a bull. It was that same son who sent the Duke of Alva upon his barbarous mission to the North Country.

One could all but write the history of classic Greece from a knowledge of its games, and tell something of its philosophy, too. Plato, in our time, while not engaged on a Chautauqua circuit, would be urging municipal playgrounds and swimming pools.

Photograph by R. R. Sallows

THIS SPORT WAS TOO BIG FOR ANY SMALL BOY TO RESIST

The prospective victim being the largest man in Goderich, Canada, who weighed 460 pounds.

"Every well-constituted republic," he said, "ought, by offering prizes to the conquerors, to encourage all such exercises as tend to increase the strength and agility of the body." He advocated State provision for teaching girls to dance and the use of arms for self-defense.

THE PLAY SPIRIT AS A PIONEER FOR PROGRESS

A Hawker sets out to fly across the Atlantic as a sporting proposition and helps chart the course that soon will be plied by air carriers of work-a-day commerce. Whirring motors churn about a banked speedway as thousands sense the zest of a breathless and death-defying game, but the play spirit which the contest arouses—the spirit that ever drove men to higher attainment—generates the stimulus for bringing nearer to perfection man's new-found servant, the automobile. Benjamin Franklin, employing a boy's familiar plaything, snatched from the clouds a secret that outdoes the pranks of a magic carpet.

Photograph by A. W. Cutler

MEET OF THE HOUNDS AT HIMBLETON, WORCESTERSHIRE, ENGLAND

This is one of the fox-hunting counties of Old England, where raising thoroughbreds was a gentleman's industry and where the hounds had pedigrees and histories that passed into the folk-lore of the countryside.

Invention of the rubber bladder made football popular, of the gutta-percha ball added immensely to golf, and of the encased sphere made tennis a keener sport; and so the story might continue to the mighty industries that provide the amusement to be had from motion-picture play or from phonograph record.

COLONEL ROOSEVELT'S INFLUENCE ON SPORTS

Theodore Roosevelt's influence is generally accounted in social, political, economic, and literary fields; yet time may show that one of the most profound lessons he impressed upon American people was a deeper regard for healthful, vigorous, strenuous outdoor sport.

The story of how the weakling Roosevelt went to the open places of the West and played at broncho-busting and cattle-herding, and later relaxed in African jungle from seven years in the hardest job in the world, is an oft-told tale. Such an uprooting of one's life, thanks to our national parks, is not necessary today. More and more is it the habit of young men and old to seek the health-giving recreations to be had in Uncle Sam's matchless play places.

Walking is one of the most healthful and invigorating of all pastimes and free to every one. Yet it is much neglected by Americans. Perhaps the automobile is to blame, in some degree; but the fact that walking is deliberate and lacking in that element so dear to the American heart, competition, also must be taken into account.

To the seasoned pedestrian "joy riding" cannot compare with "joy walking." The latter affords the devotee intellectual delights that neither speed nor rivalry can offer. To him walking is truly a royal road to learning—a matriculation in the God-given university of nature. To walk is to open the book of natural wonders—to see the flowers and the trees, to hear and know the birds and all the voices of the outdoors symphony.

Then, too, there is a walk for every mood and temper. Gladstone loved to walk in the rain; Browning delighted to stroll by night; Charles Lamb turned to the crowds of busy streets, while Wordsworth stole away to the silent places.

That protean sportsman, Theodore Roosevelt, counted walking among his favorite recreations, and found a plunge through untraveled woods, across streams, up and down the hills, strenuous enough for him. Former President Taft likes walking, but prefers the sights of the city streets.

Europeans have a higher regard for walking than most Americans. Viscount Bryce, when ambassador at Washington, by his daily tramps learned to know the environs of the National Capital as do few of the residents. He frequently covered 15 or 20 miles in an afternoon.

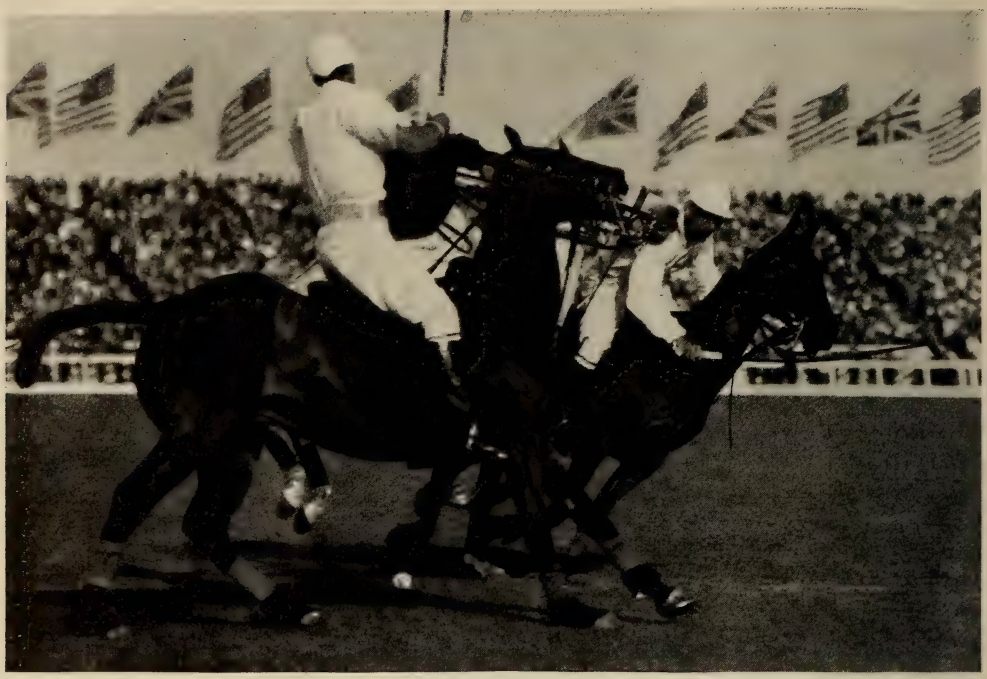
SPORTS BEHIND THE LINES HELPED TO WIN THE WORLD WAR

The World War has helped stress a higher claim for sport, more potent than the fact that plays and games register the habits and habitats of bygone peoples or that they stimulate mechanical invention; for it has proved that sport conditions the moral fiber of a people and tempers those mental qualities that advance civilization.

Right up to 1914 it was almost bromidic to laugh at the Englishman for putting his recreations in his "Who's Who," alongside of matters considered more weighty; for publishing massive tomes and cyclopedias of sport; for waging mighty word battles in print over the relative merits of the breech-loader and muzzle-loader for shooting grouse. Now the world knows that the Derby at Epsom, the cricket at Rugby, and the fox-hunts of Northamptonshire had everything to do with the bulldog determination with which he "carried on" one heartbreaking summer after another against vicious Hun onslaughts in Flanders.

It is significant that the wise men of Washington, London, and Paris made every effort in war time to maintain the amusements of the people. "Millions for morale," a familiar American slogan, was another way of saying "millions for play." At the government's behest, one welfare organization alone sent 25,000 baseballs and 15,000 baseball bats to France before half our men had arrived there.

Even the sport-loving Britons are said



Photograph by Paul Thompson

RAPID ACTION: INTERNATIONAL POLO

The exciting moment pictured here affords an extraordinary study of equine feet. The hind feet of the center horse are both off the ground and the pony in the foreground is giving a splendid demonstration of ankle action. In his sudden stop, two of his four fetlocks are touching the ground.

Photograph by National Photograph Co.

WHERE THE HORSE STILL HOLDS HIS OWN

Throughout the ages the horse has stood second only to the dog as man's best friend and playmate. Feats of horsemanship date back to the first "thoroughbreds" of Arabia, which, according to Moslem tradition, were descended from horses that Solomon bestowed upon the Arabs. Modern racing had its beginning with the charioteers of the Olympiad. Only in recent times has horse-racing in the western world been associated with gambling. In the Middle Ages tennis was played for heavy stakes, and a Puritan writer of Elizabeth's time, who excoriates most other sports, commends horse-racing as "yielding good exercise."

ONE REASON WHY FRENCH CHILDREN ADORED THE BOYS IN KHAKI

This was one of a series of "tank sports," which had no reference to the British tanks, though they were about as rough.

to have admired and wondered at the American dough-boy, whacking out three-baggers amid the booming of Big Berthas, issuing occasional rain-checks in mid-inning when the downpour of bursting shell became too distracting. In one cramped trench, so the story goes, was a quartet of Yanks who exhibited the same spirit in playing "five hundred;" in others it was poker or "rummy." A whizzing shell all but ripped off the thatched roof. Drawled a lank, prairie-bred Yank: "Gosh, if Fritz does that again, I'll trump my partner's ace."

Not that taking one's games to war is an American invention; the Yanks merely did it on a larger scale. Drake insisted on finishing a game of bowls before going out to encounter the Spanish Armada. Englishmen played cricket at Ladysmith while the enemy shells burst above them. When the sea was calm, Captain Cook, on his long voyages, made his men dance the hornpipe to keep in trim.

Qualities of initiative and courage and endurance implanted upon American gridiron and diamond shone with glorious luster at Cantigny, at Château-Thierry, and in the Argonne. That is why one of the most valuable by-products of this crucible of suffering will be a realization in this country that the sinews which won the war are just as needful for the rigorous, bloodless battles of peace.

AMERICA'S CONTRIBUTIONS TO THE WORLD'S PLAY

Back home, before the war, America had contributed two new things to sport: baseball and the city playground.

It has been noted that sports of a nation afford an almost invariable barometer of its progress in civilization. Baseball is one of the most complicated and highly organized pastimes known to any people. It is a veritable instrument of the most delicate precision in the world of sport. A South Sea islander no more could play it than he could

Photograph by M. Rosenfeld

A GOOD STIFF BREEZE IS NATURE'S SPEED LAW ON THE OCEAN HIGHWAY

Photograph by Central News

TAKING THE WATER JUMP IN THE JUNIOR RACE: ETON COLLEGE, ENGLAND

This is the way the English schoolboys played for generations in unconscious training for the obstacle race through Hun bayonet, barbed wire, and barrage in France. Note the Eton headgear of the gallery.

AQUAPLANING OFF ALTON BEACH: MIAMI, FLORIDA

This exciting sport of sea-sledding behind a motor-boat speedster at 30 miles an hour is a thing of joy and thrills to the onlooker as well as to the rider.

© G. R. Ballance

SKIING DE LUXE AT ST. MORITZ

Long the auto of Scandinavians, the ski, like the skate and the stilt, had a military use. Had there been a league of north European nations some centuries ago, its international army, passing in review, would have disclosed a Swedish ski regiment, a skating battalion from Norway, and Hollanders on stilts.

operate a linotype machine or deftly handle the paper money in a bank teller's cage.

Yet the instincts baseball satisfies—the zest of racing to a goal ahead of the ball, the deep satisfaction of diverting a swiftly moving object to serve his own ends, the mere impact of the speeding sphere against the instrument he controls, bagging the spheroid as it flies afield, the suspense of nine men as they await the batter's fate—each and all find their counterpart in play as old as animals that walk on two feet and have enough gray matter atop their spinal columns to control nature's laws for their human purposes.

The foot-race ever was the most popular of the twenty-four Olympian events. The Romans batted balls with the forearm swathed with bandages, and the Gilbert islanders wrap cocoanut shells with cord so they will rebound to a blow from the open palm; Homer's princess of Phæacia is represented in the Odyssey as jumping to catch a ball tossed by her maids of honor; and the Chinese had a game in which a suspended ball was kept hurtling to and fro by blows from the players. Perhaps there was more sport than economy in the old Dutch habit that Washington Irving tells about, of having a lump of sugar swinging above the dinner table from which various guests at a New Amsterdam banquet took successive nibbles.

Some historians assert that the Greek games formed the foundation for the lucid thinking and the lofty art concepts that made her product classic. Yet the Olympian and the Pythian games at their best afforded no such spontaneous, and at the same time intricate, interplay of muscle and mind as baseball.

Throwing, catching, and running are as old as man; but it took the American genius for play, no less distinctive than the American genius for science, indus-

Photograph by Kenneth D. Smith

YOU CLIP THE CLOUDS AND SEEM TO GROW WINGS

A Dartmouth College athlete making a ski jump of about 75 or 80 feet, in perfect form.

© G. R. Ballance

THE WORLD'S MOST FAMOUS TOBOGGAN SLIDE

This is Cresta Run, at St. Moritz, Switzerland, known as "battledore and shuttlecock" because the coaster is tossed about by a series of corners, curves, and grades, no two of which are alike.

Photograph by Curtis and Miller

CLIMB AMERICA FIRST

This might well be the motto of those who feel the universal urge for climbing and repine because they cannot go to the Alps. This scene is on the slopes of Mt. Baker, Washington State.

Photograph by Haynes

HIKERS ON LOWER ST. MARY LAKE: GLACIER NATIONAL PARK

To visit Uncle Sam's National Parks is to do more than "See America First"; for they afford virtually an inland tour of the world. In them one may view the earth's biggest trees and pluck Alpine wild flowers; delve among Stone Age relics or track the "tame wild animals," from caribou to chipmunks; gaze upon the lofty peaks of Glacier Park, shown in the picture, or peep into the yawning depths of abysmal canyons, as in the Yellowstone, Yosemite, and Grand Canyon.

Photographs by W. R. Ross

THE "WANDERLUSTERS": WASHINGTON'S WALKING CLUB

Exercise need not be strenuous to be invigorating. These city folk are enjoying the world's oldest and most democratic sport, traversing a few of the beauty spots that abound in the environs of the National Capital (see also page 103).

Photograph by R. R. Sallows

THE BOYS' EXCUSE WAS, "SOMEBODY STOLE OUR CLOTHES!"

Photograph by International Film Service

SKATING IN CENTRAL PARK: NEW YORK CITY

With such a playground as this at his door, small wonder that the city child should show up as well in health statistics as his country cousin.

TOBOGGANNING IS A FEATURE OF THE OUTDOOR SPORTS CARNIVAL: ST. PAUL, MINNESOTA

Just as New Orleans, near the mouth of the Mississippi, employs that river, in part, for its historic mardi gras, so St. Paul, at its navigable head, utilizes its frozen waters for the city's more recent, but equally distinctive, winter sports carnival. St. Paul truly is a play city of the great Northwest, for its extensive parks, its public baths, and its State fair, most largely attended of the kind in the country, afford recreation for every season.

HOW ST. PAUL USES AN ICED STREET AS A MUNICIPAL PLAY PLACE: A HIGHLAND FLING ON SKATES

Photograph by C. A. Slade

TIMIDITY BORN OF COLD WATER RATHER THAN OF THE CAMERA'S RECORDING EYE

Photograph by Paul Thompson

THE SCISSORS DIVE

Every Roman girl was a Kellermann, from Martial's description of water games and fêtes, wherein maidens would "sport in a chariot like that of the fabled nereids and group themselves in the most varied designs"; and diving was an essential industry among the Syrians, who went out in fleets to dive for sponges, as do the old salts of Gloucester, Mass., to fish.

THE LAND AND WATER STEEPLECHASE

OFF FOR A 100-YARD RACE!

Swimming was included in a Roman woman's education. But of all swimmers perhaps the pre-Columbian Indians were the most proficient. One explorer reported, perhaps with some exaggeration, that the Brazilian and Peruvian natives would remain in the water eight days at a time. Photographs by Paul Thompson.

try, and commerce, to weld these motifs into a game that puts a premium on skill, yet admits of infinite variety; that rawest youth or trained athlete may play; and that Presidents and office boys steal away to watch.

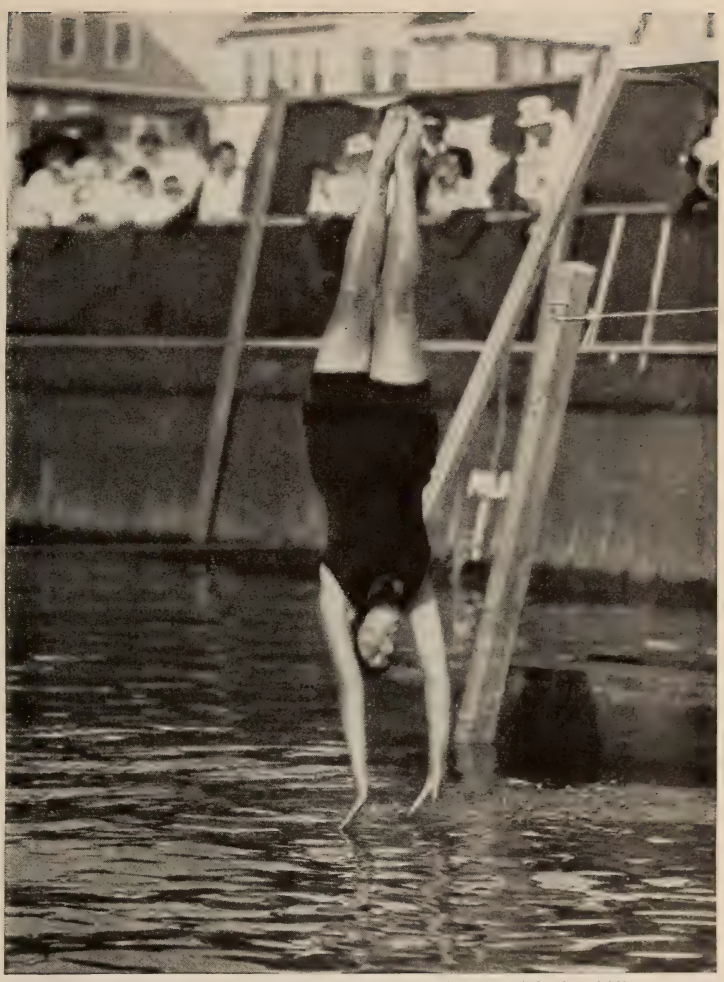
THE PLAYGROUND' BIRTHPLACE

If the Greeks paved the way for classic art by teaching adults to play and Great Britain followed in her footsteps with a more spontaneous and democratic fervor, America now appears as the most forward-looking nation in her attention to children's playgrounds. In fact, the playgrounds for children may be considered the distinctive contribution of this country to the world's play.

To gather statistics of play is like counting the sands of the sea or the children of the nation; but it is significant of the awakening interest in play to note that in 1918 more than 400 cities maintained nearly 4,000 playgrounds, and the children who found relaxation on 340 of these playgrounds from which reports were had on any one day would have numbered scarcely less than the total population of Boston.

Moreover, this was but a fraction of the opportunities for normal play, for it does not take into account the thousands of boys' clubs and provisions for their special clientele which churches, parishes, private schools, and organizations like the Y. M. C. A., Boy Scouts, Knights of Columbus, and numerous others make. One of the most characteristic adjuncts of the American school, city, town, or country district is its playground; and few are the city parks where the old "Keep Off the Grass" signs have not been superseded by invitations to play, and special provisions for games.

There is nothing artificial about the games taught to children on American



Photograph by Paul Thompson

TAKING A HEADER AT A FANCY DIVING MEET

An officer of Captain Cook's crew tells how, on a trip to the South Sea Islands, he handed some beads to a six-year-old youngster and they fell into the water. The child plunged from her canoe after them. Other trinkets were thrown into the water and the native men and women dived for them, showing such skill and staying under the water so long that the English "could scarcely help regarding them as amphibious."

Photograph by Paul Thompson

"ALL SET"

Despite our prowess in athletics, swimming is one field in which the palm must be conceded the ancients, if credence be given the marvelous tales of their aquatic feats. Plutarch tells how Antony engaged divers to attach fish to his hooks so he might impress his picnic companion, Cleopatra; but that shrewd lady engaged other divers the following day, and Antony found himself pulling in stale, salted fish amid peals of laughter from the Alexandria belle. Three of the world's speediest swimmers are shown set for a race, the one on the right being a Hawaiian champion.

playgrounds. They are products of a rich heritage of play tradition. Neither written history nor the faint traces of prehistoric times carry us back to a period when children did not play.

THE TESTIMONY OF TOMBS

Excavators in Central America found tiny rattles of bone and clay, as old as the pyramids of Egypt, in graves alongside baby skeletons. In Attica's tombs were uncovered dolls of pre-classic days, made of ivory and terra cotta. Little Hippodamia had a miniature bed, with slats, for his dolls. Roman children's toys were held in such high esteem by their elders that when the children grew too old for them they were offered to patron gods. Even today a similar association of religious ceremony and games is preserved, only it is with the acquisition of the toys, and not with their disposition, that Christmas and Easter are connected.

For one who would study the derivation of games, the average playground, no matter how crude, is a veritable museum of archæology. Tools and weapons of one age frequently become the playthings of the next; and centuries later, when adults have deserted the sport, children adopt it.

Many sports today are the survivals of obsolete industries. The canoe was the Indian's common carrier, and the Tierra del Fuego women who paddled their craft astern while their masters fished from the prows, and plunged into icy waters to anchor their barks, were pioneers of women in business and far from

Photograph by Kenneth Kerr

AN ESKIMO IDEA OF A GOOD TIME

No, the lady is not being punished for witchcraft; she merely is being crowned Queen of Love and Beauty by an Alaskan swain. The photograph was taken by a missionary at Point Barrow. There it is the custom for the Eskimo whaler making the biggest catch to be honored by the tossing of a woman in a blanket. Formerly this ceremony was observed after a victory in battle. The blanket is held taut by Eskimo boys and men. The more blasé belles always land on their feet; but a subdebutante is likely to have her head turned or her neck broken if this honor is too suddenly thrust upon her.

paddlers or divers for sport's sake. The Samoans who fashioned pearl shells to resemble small fish and attached tiny feathers for the fins may have been the precursors of fly fishers but their livelihood depended upon the catch.

THE DEVELOPMENT OF GAME-HUNTING

Game-hunting marked an important development in the life of primitive races. The Indian who stalked deer, the Semang black man who tracked snakes, the naked savage who hunted the rhinoceros, snared wild birds at their drinking places, and trapped the tiger were not out for a summer's sport.

Methods of hunting were exceedingly primitive at first, but some tribes early developed an amazing technique. The Eskimo would wrap himself in skins and lie by the hour alongside an ice-hole to harpoon a seal. The Tarahmares of Mexico felled trees by the score to get squirrels occasionally caught as the trees fell.

More ingenious were the Tasmanians, who would clear a forest oasis by burning, wait for the grasses to grow and attract animals, and then would set fire to a barricade of brush they arranged in the meantime, with exits near which they would take their stand and spear the frightened animals as they sought to escape.

Malay wild men killed elephants by lying in wait until an animal descended a hill, and then they would drive a poisoned bamboo splinter into its heel.

Some African tribesmen camouflaged their spear-heads with bird feathers.

A BOXING BOUT ON A U. S. TRAINING SHIP

Fuegians attained a low visibility by daubing themselves with mud and clay. Florida Indians donned skin and horns of deer to enable them to approach their prey.

Ways of setting traps for animals and of poisoning spears were known thousands of years before Christ. The sportsmanlike Greeks shrank from use of poisoned darts in warfare for the same reason that they regarded archery as a savage practice in combat. Even in war they declined to use instruments which would give one side an unfair advantage.

It was long before the horse, ridden so skilfully by the Arab and the Moor, became either a beast of burden or man's plaything at the races. And whatever the civilized opinion of bull-fighting, that sport is a far cry from either the combat to death of human beings or the lack-sport diversion of watching two animals tear each other to pieces. The Spaniard will defend his national pastime by citing that the matador runs a far greater risk than the hunter of the biggest game, with the advantage of his firearms.

Horse-racing is another sport that

Photograph from Mabel D. Merrill

PERSIAN WRESTLERS

From the Nilesian country, where tombs bear pictures of ancient wrestling, this patriarch of sports spread to many lands, and varies in its style and rules from the jiu-jitsu of Japan to the "catch-as-catch-can" mode, as reported by that veteran sporting writer, Homer, when he wrote, "He lifts Ulysses, who, having now recourse to his extraordinary skill, kicks Ajax in the hamstring and makes him bend the knee. Ajax falls upon his back, dragging with him his adversary."

dates back to remote antiquity. Probably the French were the pioneers in turf sport as practiced in modern times, but it was natural that the English, with their love of outdoors and of animals, should have cultivated the horse for the race as they did the dog for the hunt. James I seems to have been the first royal patron of racing and Queen Anne further encouraged it.

Even the austere Cromwell could not part with his brood mares. One of them was concealed in a vault by the court master of the stud at the time of the Restoration, when diligent search was made to confiscate the Protector's personal property. Thus the animal became known in tradition and picture as the "coffin mare."

Boxing and wrestling are the more humanized forms of individual contests of strength. Naturally the programs of the Olympic games, veritable encyclopedias of ancient sports, included boxing and wrestling. Moreover the Greeks had one game, the pancrace, which combined both.

Wrestling, at least, is much older than Greece, as indicated by the bouts pictured on tombs along the Nile.

In Greece, boxing fell into disfavor in Sparta for an unusual reason. The Greeks had developed sportsmanlike rules for the game, eliminating kicking, biting, and ear-pulling, and the bout closed when one boxer admitted his defeat. Lycurgus held it improper for any Spartan to acknowledge defeat, even in a game!

The Japanese have been devoted to both sports for ages. Sukune, Hackenschmidt of Nippon, in the days when John was foretelling the coming of Christ, was deified, and from wrestling jiu-jitsu evolved. Boxing today is extremely popular throughout the empire.

Jack Broughton, English "father of

Photograph by Dean C. Worcester

UNDER AMERICAN INFLUENCE, THE TUG-OF-WAR HAS SUPPLANTED HEAD-HUNTING AS THE FAVORITE PASTIME OF THE NATIVES OF NORTHERN LUZON: PHILIPPINES

The photograph depicts the moment of triumph of a team of twelve men of Samoqui over their ancient enemies of Talubin.

Photograph by Paul Thompson

A STUDY IN FACIAL EXPRESSION

This is the start of a relay race, a survival of the pre-railroad means of carrying mail. Basque runners were so swift that their speed became a by-word. Barefooted Turkish runners had their feet shod with iron, like horses, and the early English messengers wore tinkling bells that served as the postman's knock.

Photograph by Paul Thompson

THE FINISH OF A YALE-HARVARD BOAT RACE AT NEW LONDON

Rowing is one of the oldest known means of transportation and the newest form of racing. Trials of speed on the water were not common until a little more than a century ago, and to that fact is ascribed the slight advance of vessels of that day over those of ancient times. But as soon as boat and oar making were touched by the magic wand of sporting competition, radical improvements resulted.

boxing" as it is practiced today, is believed to have invented the modern boxing glove and the division into rounds, but he scorned to train in order to meet a butcher named Slack, who belied his name, with a blow like a cleaver, and put the idol of British sportdom in the ex-champion class.

Slack's "punch" recalls the story of the mighty swing of Glaucus, a Greek farmer boy, whose father, after he saw him use his bare hand to pound his plowshare into place, thought him fit material for Mount Olympus. Matched with an adversary skilled in the fine technique of Greek boxing, Glaucus waxed decidedly "groggy" until, so the story goes, his father shouted "Strike, my son, as you did on the plow;" whereat the lad from the farm lulled his opponent to a swift sleep with a hammerlike blow.

Avoidance of brutality in even the most grueling of the early Greek contests is indicated by the heavy penalty a contestant was compelled to pay if he inflicted death upon his opponent, and again in a peculiar style of boxing, which consisted almost wholly in defensive tactics. There is a legend concerning Hippomaches, who defeated three opponents successively by sheer attrition and left the field without having inflicted a single blow.

FOOTBALL WAS A ROUGH GAME EVEN IN ELIZABETH'S DAY

Running, throwing, hitting, and kicking are the fundamental muscular operations of America's characteristic sports — baseball, football, tennis, and golf. The peoples of antiquity manifested all these instincts in cruder form.

Luzon hillmen, the Polynesians, and the Eskimo and Sumatra islanders had

Photograph by Paul Thompson

THESE LATTER-DAY APOLLOS ARE FIT SUBJECTS FOR THE CHISEL OF A RODIN

games played by kicking a ball. Greeks played it, and the Roman game, harpastum, derived its name from the Greek "I seize," which is evidence that carrying the ball was practiced then. With shoes of hide, the medieval Italians played a game which seems the direct ancestor of the Anglo-Saxon college sport. Gaelic scholars point to a football game in Ireland before the time of Christ, and until comparatively recent times Shrove Tuesday was distinctively an occasion for football as is our Thanksgiving today.

In old England football was even rougher than most sports of those hardy times. James I thought it was "meeter for lameing than making able the users thereof." Henry VIII and Elizabeth ruled against it. Edward II frowned upon it for its interference with archery and also because of the commotion it aroused. In those times it was played in the city streets. A writer of the sixteenth century called it a "devilish pastime" and charged it with inciting "envy and sometimes brawling, murther, and homicide."

Nevertheless, by the time of Charles II football had become firmly established at Cambridge. It was ever held in high

CHAMPION HIGH JUMPER OF AFRICA

The East African native here shown is jumping from a small termite heap a foot high. The best jumpers of his region attain astounding heights of 8 feet 5 inches.

HOW EUROPEAN GIRLS "GO IN" FOR ATHLETICS

Photographs by Paul Thompson

CALISTHENIC DRILL OF 17,000 TURNERS IN LEIPSIC

Photograph by Edwin Levick

A PHENOMENAL SERVICE STROKE

A former United States national tennis champion in action.

esteem in Ireland. There, when all other sports were prohibited for archery's sake, "onely the great footballe" was exempt. Women joined with the men in playing it on Shrove Tuesdays. So many participated that few knew the whereabouts of the ball. An expedient, which not so long ago aroused a furore in the American sporting world, was adopted by a player, who shook out the shavings with which the balls of those days were stuffed and carried it under his shirt to the goal.

Abandoned as a general pastime because of its roughness, it was retained in colleges until, within the past half century, it sprang into renewed popularity in greatly modified form.

The British carried football into Jerusalem when they recovered the sacred city. Missionaries have taught it to heathen tribes.

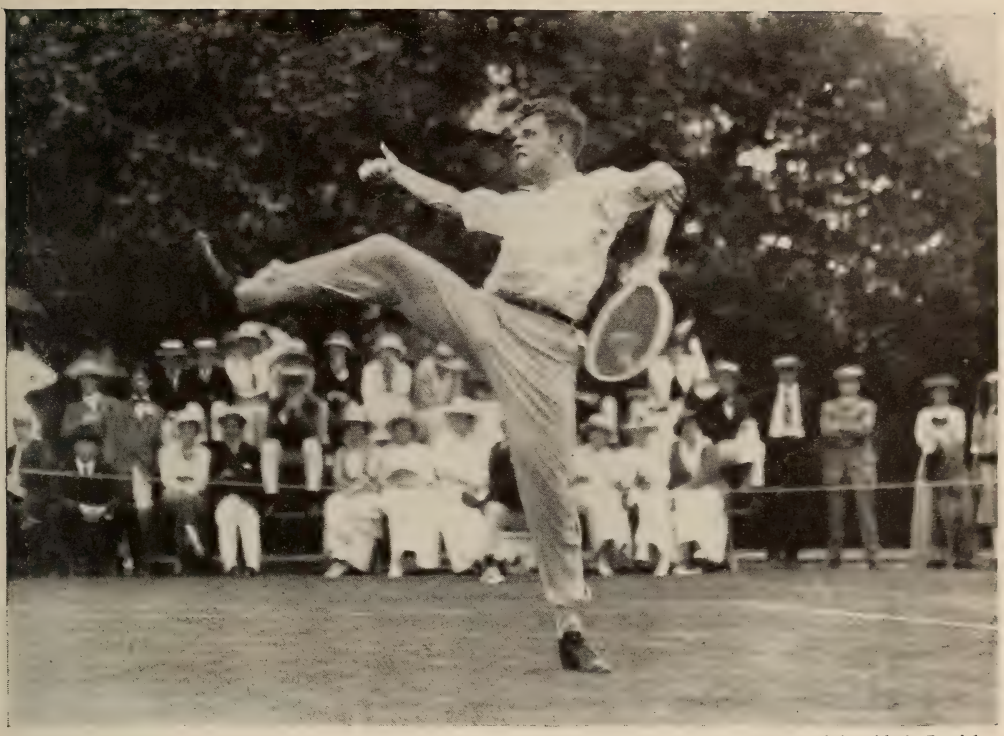
The reason why it has become a handmaiden of civilization and is so popular among college men of America was summarized by Howard S. Bliss, writing about the Syrian Protestant college at Beirut, of which he was president, in an article for the NATIONAL GEOGRAPHIC MAGAZINE:

"You will find the son of a prince playing football under the captaincy of a peasant or the son of a cook. We believe in football there and we have 17 or 18 different football teams in college. The game develops the ability to receive a hard blow without showing the white feather or drawing a dagger. This means that when the men get out of college they will stand upon their feet as men."

THE ANCESTRY OF TENNIS

Likewise one must go back to the Greeks and Romans for the origin of tennis, which descended to England by way of France. In the twelfth century a game with ball and plaited gut bat was played on horseback. Then came "La boude," in which the horses were abandoned. This was a "royal game," at least from the time that Louis X died after excessive playing had induced chills. Chaucer wrote: "But canstow playen racket to and fro," while the church found it necessary to prohibit priests on the continent from spending too much time upon it.

Margot was the Molla Bjurstedt of the twelfth century, famed especially for her back handstroke. Henry VIII of England was a youthful devotee, while Louis



Photograph by Edwin Levick

THE GAME WHERE EVERY MUSCLE COUNTS

Few sports call into play so many muscles or combine mental and muscular activity to such a degree as tennis. Evidence that Romans soon forsook the Greek ideal of a sound mind in a sound body is found in the fact that Horace and Virgil could not join their patron, Maecenas, at tennis because of weak eyes and poor digestions. It was a truly royal game when kings of France and England played it; and it typified the democracy of the New World when ambassadors, generals, politicians, and cowboys joined Roosevelt's famous "tennis cabinet" back of the White House executive offices.

XIV's heavy expense accounts show salaries paid to caretakers of his courts. Complaint was heard at one time that there were "more tennis players in Paris than drunkards in England." In Shakespeare's Henry V are these lines:

"When we have match'd our rackets to these balls
We will, in France, by God's grace play a set
Shall strike his father's crown into the hazard."

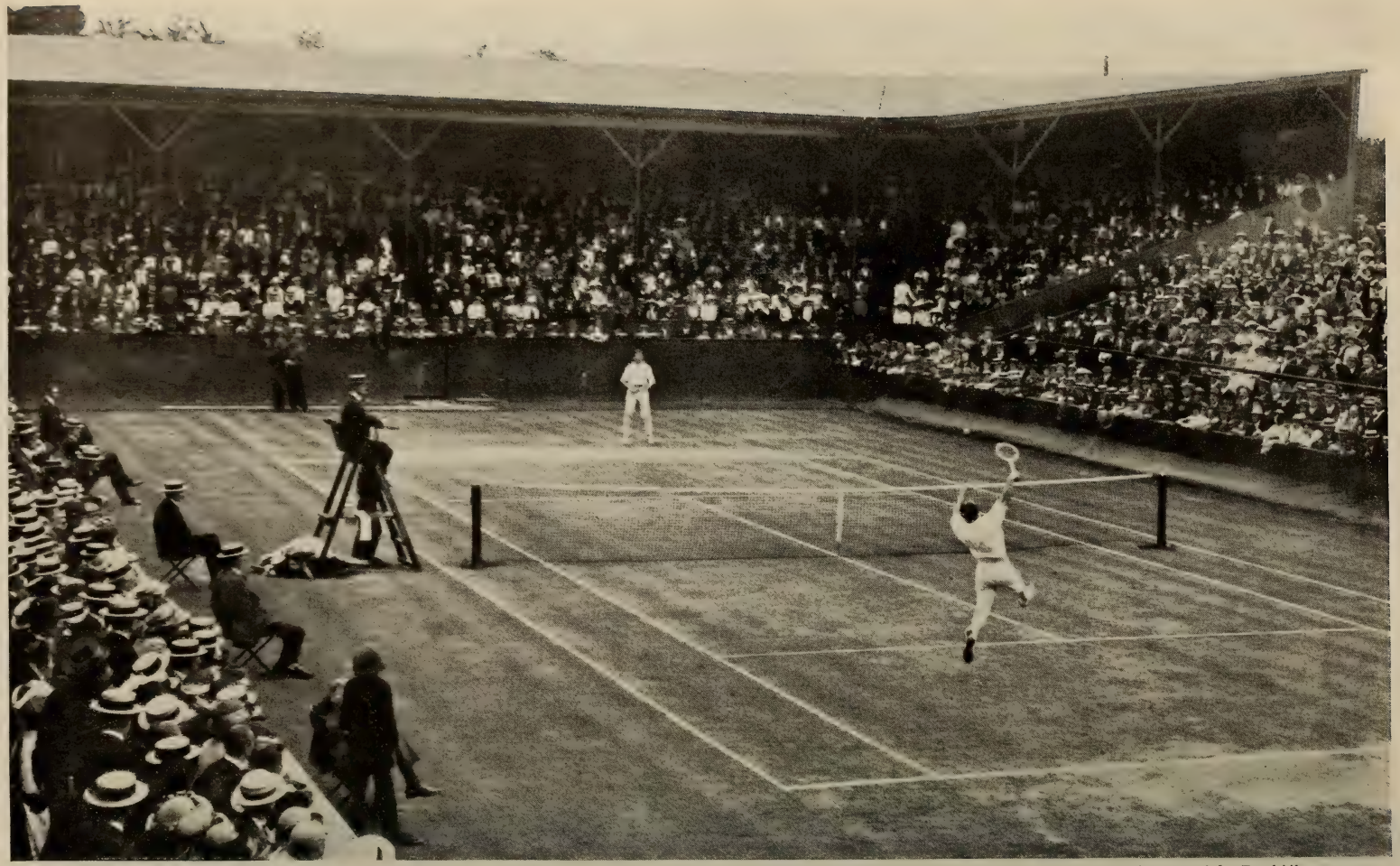
Manufacture of the accessories of the game became so flourishing an industry in England in the sixteenth century that appeal was made for a protective tariff against imported balls.

Until that century the hand continued to be used for batting, but soon the racket came into general use. A match, probably played on a Windsor Castle court, is recorded in which the King of Castile gave his opponent "fifteen" because the latter used his hand.

Even tennis, like all medieval sport, was not free from the taint of gambling and charlatanism. It was charged that "certayne craftie persons arranged for crack Lombard players to meet Henry VIII." The monarch was induced to make wagers with these players until, losing large sums, he became suspicious and played only with amateurs. In one famous match the Emperor Maximilian was his partner, the two playing against the Prince of Orange and the Marquis of Brandenborow.

GOLF HAD ITS BEGINNING ON ICE

If tennis has a royal lineage, golf, which was later regarded as a rich man's



Photograph by Paul Thompson

AMERICA INHERITED TENNIS FROM FRANCE, WHOSE LOUIS X DIED AS A RESULT OF EXCESSIVE INDULGENCE IN THE SPORT

In Spain it would take a bull fight, in Mexico a cock fight, in England a cricket match, and in most American cities a baseball game to attract this number of spectators.

Photograph by Edwin Levick

ON THE FAMOUS 10TH AT BALTUSROL

While tennis boasts of royal lineage, golf originated in plebeian surroundings. Contrary to general belief, it had not its beginning among the Scotch Highlands, but in the Low Countries of northern Europe. By the fifteenth century, however, its popularity in the land of heather and bagpipes threatened the ascendancy of archery.

SAFE!

Photographs by Paul Thompson

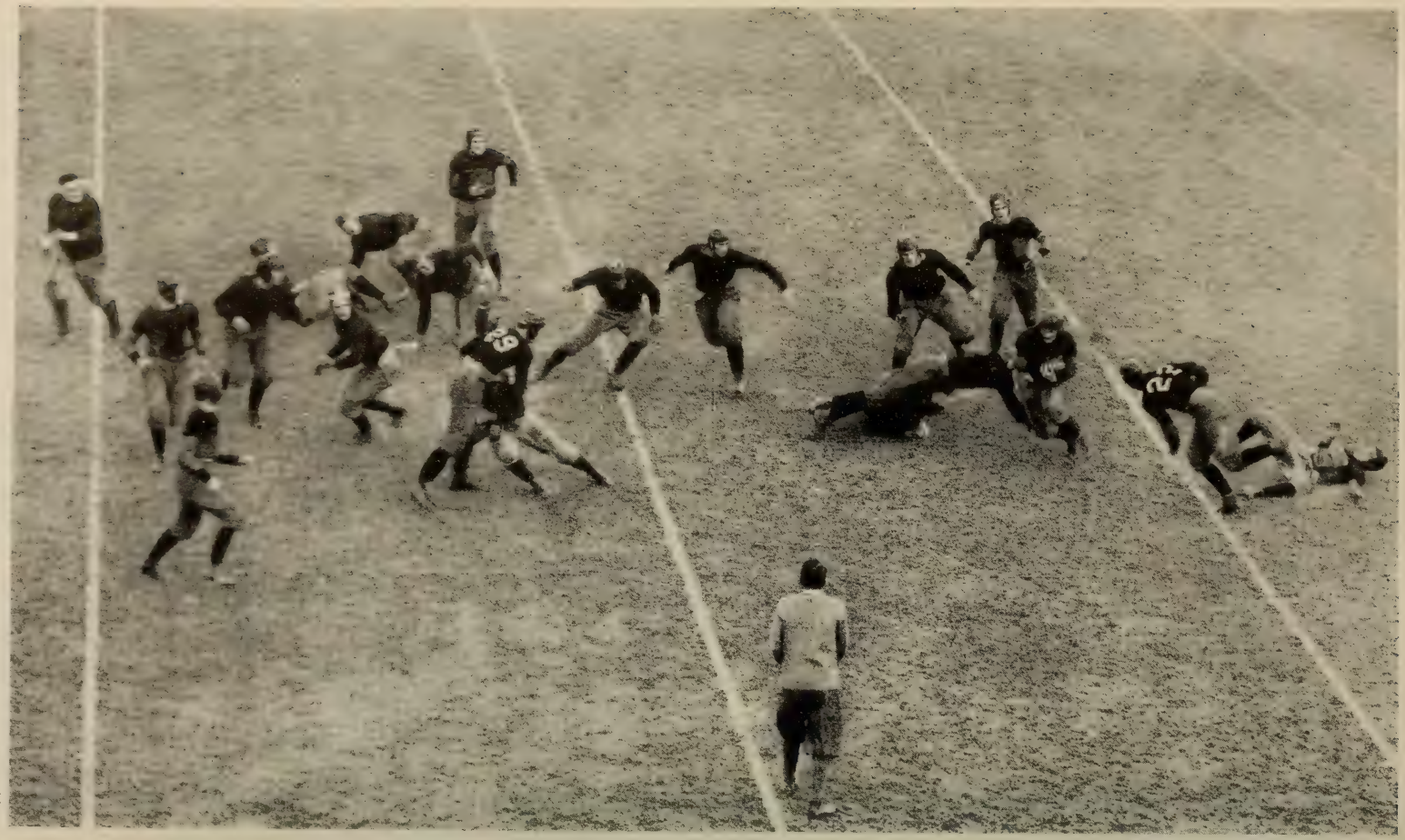
SLIDING HOME

Photograph by Edwin Levick

A BUNKER SHOT

NAVY TRYING FOR A FIELD GOAL PLACE KICK

King James found football "meeter for lameing than making able the users thereof," and another writer charged the game with inciting "brawling, murther, and homicide." Small wonder, for entire towns engaged in it, and the whereabouts of the ball was of minor consequence. It remained for American colleges to put the ball back into football and take enough of the "kick" out to make it a red-blooded and humane sport (see page 129).



Photograph by Paul Thompson

TRYING FOR AN END RUSH: NOTE THE EXTRAORDINARY ATTITUDES IN WHICH THE CAMERA HAS CAUGHT MANY OF THE PLAYERS

This picture might well be called "The Spirit of Football," for every player is in action, and alertness and agility are the prime requisites of the game.

THE DEVELOPMENT OF THE AIRPLANE ENGINE WAS LARGELY DUE TO AUTOMOBILE RACING

Of the hundred thousand people who witness automobile races such as the Indianapolis Speedway Classic, pictured above, how many realize that the airplane substantially owes its development to the keen rivalry which exists between the builders of automobile engines? Such competition on the track resulted in the improvement of the gasoline engine to the point where its adaptation for aircraft use was quickly possible and eminently successful. These great speed and endurance tests have been directly responsible for saving many lives, for weak spots and faulty construction are inevitably exposed during the long grind of the race, and as rapidly as these defects are detected they are eliminated from all types of cars by automotive engineers. Thus touring accidents, caused by the breaking of steering knuckles, tie rods, axles, etc., are minimized and tragedies of the highway caused by mechanical shortcomings are constantly becoming less frequent.

Photograph by Dean C. Worcester

THE BONTOC IGOROT SLAPPING GAME OF THE PHILIPPINES

There are two contestants in this remarkable pastime. One man sits on a bench with the thigh exposed to his opponent, who administers a blow with the flat of his hand with all the strength he can muster. After the stroke, judges examine the thigh of the man who has been struck. If the blow has been sufficiently hard to cause the blood to show beneath the skin, the striker has won the game, but if not then the opponents change places. The first contestant who causes the blood to show beneath the other's skin is declared the winner. Note the knots of muscle that spring out on the striker's arm, back, and legs as he strikes.

game, had most plebeian beginnings. Contrary to a widespread belief, it seems not to have originated in Scotland, but in northern Europe. Apparently it was first played on ice, being one of the winter sports adapted to the physical geography of the Low Countries. Even in the north, though, it evolved to a *terra firma* stage, as indicated by a sketch in a book illuminated at Bruges, which shows three players, each with a ball and one club, playing on turf.

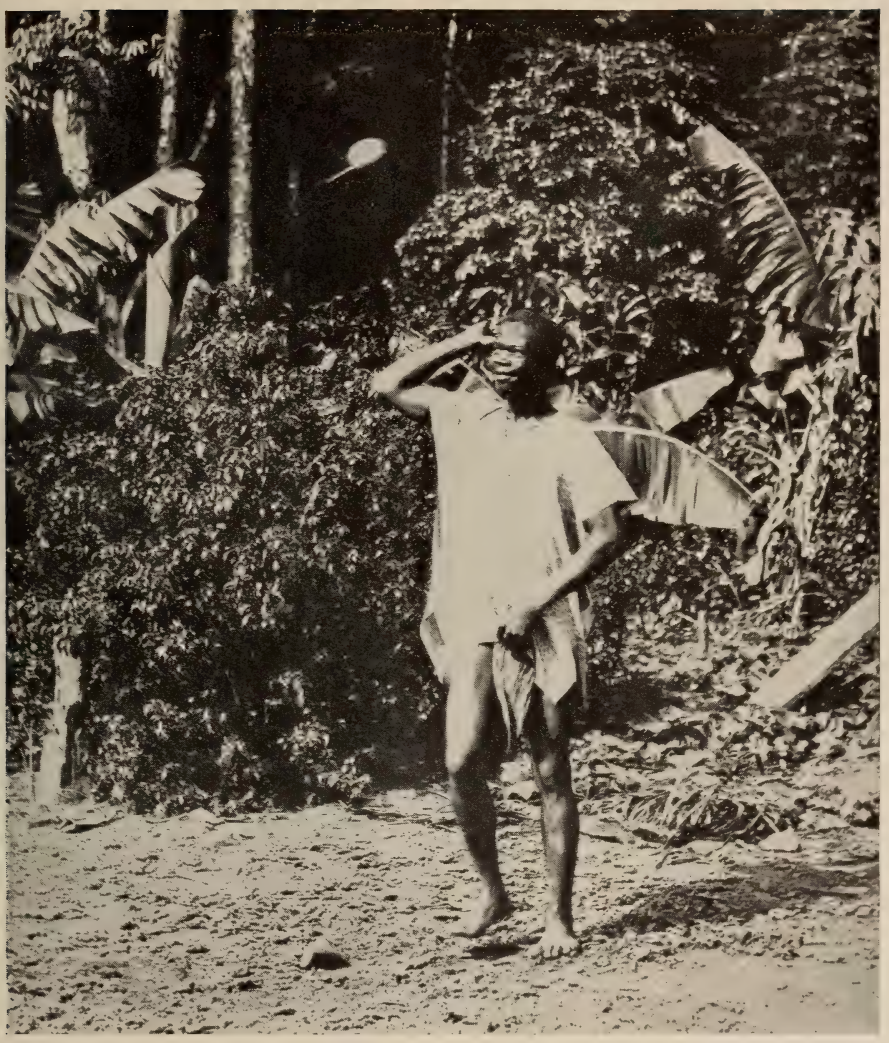
By the fifteenth century golf had attained such vogue in Scotland that it threatened the cherished archery, and it is classed with "fute-ball" and other "unprofitabll sportis" by James IV. That monarch, however, seems to have disregarded his own edict, as did enough other Scotchmen to keep the game alive.

Like tennis, golf was played by both sexes. Critics of Mary Stuart cited in evidence that her husband's fate weighed so lightly upon her heart that she was seen playing the game in the fields near Seton.

To the Romans also is ascribed a game that suggests modern golf. It was played with a feather-stuffed ball, and called "paganica," because the common people played it—another evidence of the game's lowly origin.

THE BOND OF PLAY

America's love of play is a distinctive part of her Anglo-Saxon heritage. Where two or more English-speaking people get together, be it in Bagdad or Buenos Aires, their common tongue makes the point of contact, but it generally is their love of active play that forms the tie that binds their comradeship.



Photograph by G. N. Collins

LIBERIAN NATIVE SPINNING THE GYROSCOPIC TOP

Two of the inexplicable facts of science are that the primitive tribes of Liberia should have discovered the principle of the gyroscope long before it was known to civilized peoples, and that the Australian natives, who have not even advanced to the agricultural stage, should wield the boomerang, involving another principle of advanced physics, in a manner that white men cannot equal. The Liberian keeps his top spinning in the air for any desired time by repeated strokes with the small whip in his right hand.

Certain oriental dignitaries visited London some years ago and were deeply impressed by their lavish entertainment. One thing puzzled them. Inquired one, when his curiosity got the better of his restraint, "Why make the women of your own families dance and why play so many games yourselves? We can get dancing girls and minstrels to entertain us?" Nearer neighbors than that never can understand why Englishmen and Americans play so hard.

No explaining is needed among Anglo-Saxons for mountain-climbing, baseball, walking, or other active exercise. Colonial Americans brought the sports of England with them. George Washington's diaries attest his love of hunting

Photograph from Central News

PARACHUTING FROM AN AIRPLANE, WOMAN'S LATEST SPORT

Descent by parachute from the old-fashioned hot-air balloon used to inspire awesome "Ahs!" from the assembled thousands at county fairs and on circus grounds, but floating to earth after "cutting loose" from a gently swaying bag provided a far less exciting sensation than the sudden drop from a swift-flying airplane, such as this daring aviatrix is experiencing. The parachute of modern aviation is the aërial navigator's life-belt. When the great British dirigible R-34 made its epochal transatlantic flight a few weeks ago, every officer and member of the crew was provided with one of these emergency devices, and by this means one of the officers descended from a height of 2,000 feet to superintend the anchoring of the craft at Mineola, Long Island. It is not improbable that the airship inspection service of the future will be rigorous in its insistence that every passenger on a transoceanic aërial express shall be provided with a parachute, just as today ocean-going vessels are required to provide a life-preserver and seating place in a lifeboat for each person on board.

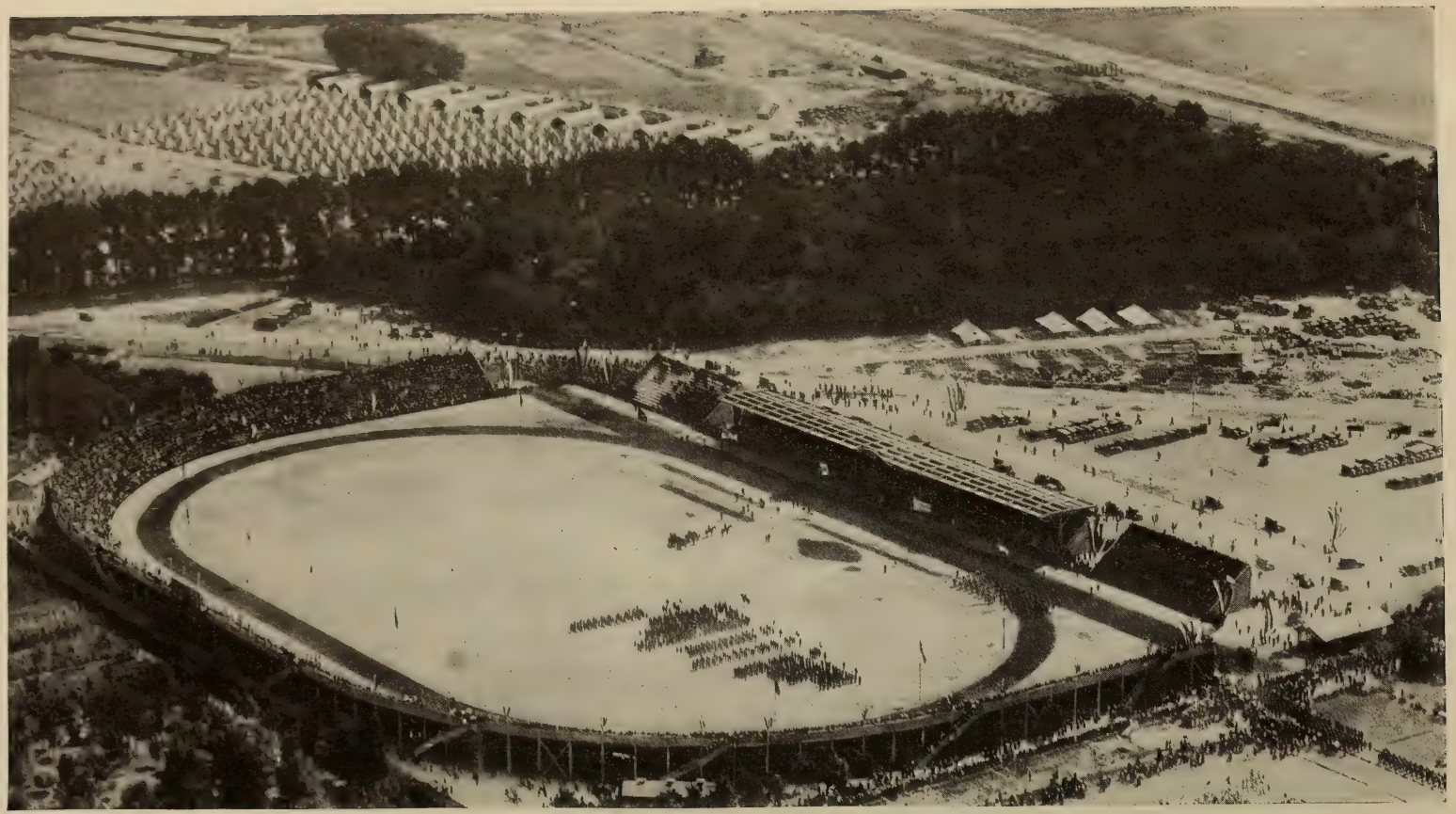
Photograph by International Film Service

THE NEWEST SPORT: AËRIAL ACROBATICS

Standing on the top plane of one "ship," a very military aviator is seen here waiting to grasp the rope ladder suspended from another machine—a feat which he successfully accomplished recently after several attempts. Transferring from one airplane to another while both are speeding a hundred miles an hour should furnish "the thrill that comes once in a lifetime."

and he, like Grover Cleveland, enjoyed fishing.

Most great Americans have played. Benjamin Franklin, who prized his minutes and his pennies, was as enthusiastic a sportsman as that other versatile American, Theodore Roosevelt. Franklin was an expert swimmer, as well as a pioneer fresh-air advocate, and once seriously considered an offer to become a swimming instructor. Lincoln has been widely acclaimed for burning the midnight pine knots; but he has received too scant credit for his daily practice of wrestling and running which developed his marvelous endurance and capacity for work.



PERSHING STADIUM, SCENE OF INTER-ALLIED GAMES, PHOTOGRAPHED FROM THE AIR

This is the sign and seal of America's new play alliance with France, duly ratified by millions of doughboys and poilus. Not only did the "Yanks" take their games to France, but they taught baseball to some twenty-four nationalities behind the Allied lines. This stadium, after its dedication by General Pershing, was presented to France as a lasting memorial of the new *entente cordiale* in sport. The stadium is at Joinville, near Paris. It was built at a cost of $100,000 by American army engineers with money contributed by the American people through the Y. M. C. A.

A GIRL OF THE HARDANGER REGION, NORWAY

The people of this part of Scandinavia have to a large extent retained their medieval style of dress. The women wear a black skirt with a long white, deeply embroidered apron and a white waist with a short velvet jacket embroidered in intricate design with brightly colored beads. Married women wear a white cap which almost entirely conceals the hair, and bridal crowns are passed from mother to daughter. These women excel in embroidery and weaving.

THE DISTAFF OF THE SPINSTER IN THE DOURO DISTRICT, NORTHERN PORTUGAL

The spindle and the distaff are still employed here for producing the best linen thread used in the beautiful laces for which Portugal is famed. Woolen yarn for the family clothing is also spun by this primitive method. Rustic life in Portugal is not a dull, dreary grind, for each epoch of the farming year is celebrated with a *festa*, and of fairs and such gatherings there is no end.

WEAVING THE MULTI-HUED NAVAJO BLANKET: SOUTHWEST UNITED STATES

Such a primitive loom as this is said by ethnologists to have originated with the Chilkat Indians of Alaska. This tribe still produces some wonderful blankets, but those of the Navajos of the Southwest are better known to the world at large. The warp is hung over a long pole, as shown in the picture, and mythological figures are woven into the piece in brilliant colors.

OUTDOOR WEAVING IN SUNNY MEXICO

Like everything else in Mexico, textiles range in quality from the crudest to the best. In the North the peons weave coarse net work and lace of twine, but in the South they produce beautiful fabrics of intricate design and wonderful texture.

WEAVING HOMESPUN LINEN: SERBIA

Both the men and women of this little war-torn country wear linen smocks spun, woven and made into garments at home. Over this garment the men wear gayly colored waistcoats and the women short velvet jackets decorated with much embroidery. Another feature of the feminine dress is the two gaudy aprons worn tied over the white linen skirt. This little old lady, who has stopped her labors for a moment and smiles up from before her crude loom, is creating the family's supply of white cloth.

A WEAVER OF SANTA CRUZ, LA PEROUSE ISLANDS, SOUTH PACIFIC OCEAN

The mats and "dilly" bags made by these men of cannibalistic forebears are among the most beautiful articles produced in the South Sea Islands. The patterns and designs reflect much ingenuity and are woven into the piece with a flax which has the lustre of black silk.

MANUFACTURING A FLOOR COVERING OF REEDS: EGYPT

The three weavers of great, greater and greatest degree have in hand the actual work of intertwining the reeds among the threads of the warp while they are waited upon by assistants who are probably apprentices and may at some future time succeed their present masters. The three sleeping urchins in the background may eventually bring more reeds, after their nap.

KOREAN WOMEN SPINNING AND WEAVING

Korea, now called Chosen, had an important part in the extension of the silk industry, according to a story in an ancient Japanese book. About 300 A. D. a party of Koreans was sent from Japan into China, where the secrets of the wonderful silk manufacture were [illegible]

EXPLORING THE GLORIES OF THE FIRMAMENT

By William Joseph Showalter

Author of "Chicago Today and Tomorrow," "New York, the Metropolis of Mankind," "Steel, Industry's Greatest Asset," "How the World is Fed," etc.

DEALING with distances in the endless reaches of space where a million miles are but as an inch in terrestrial measurements; studying worlds that are as much larger than ours as a mountain is bigger than an ant-hill; gauging the velocities of celestial travelers that outfly the speediest Spad that ever chased a Hun as an express train outruns a snail; reckoning with forces that make the tremendous eruptions of a Katmai seem weaker than the bursting of a mustard seed, the astronomer is an explorer of realms that overpower the layman's comprehension and overwhelm his imagination.

But luckily this layman can check up the celestial geographer in a way at once dramatic and convincing. The grapes brought back by Joshua when he was sent to spy out the Promised Land were not half as sure a corroboration of his story as are the fulfilled prophecies the astronomer brings back from his incursions into the depths of space.

He tells of stars that are trillions—aye, sextillions—of miles away; of suns that are hundreds, and even thousands, of times as bright as the orb of our day; of forces that are thousands, and even millions, of times as great as the power with which the earth sweeps round the sun.

THE ASTRONOMER AT THE BAR

Does he know what he is talking about? Let us put him on trial and see. Our witnesses shall be heavenly bodies and forces themselves. The first one we shall call, out of the thousands who could testify, is a comet—Halley's. Here is its evidence:

"Yes, I'm a comet. For countless generations I had been swinging through space. When I approached the earth men believed me a messenger of evil. They knew precious little about me or my kind. In 1682 I appeared on one of my excursions into realms bounded by the earth's orbit. A little before that Sir Isaac Newton had worked out the fundamental principle of celestial mechanics, namely, the law of gravitation.

"He had a friend by the name of Halley. This man undertook to see whether or not I was subject to that law, and whether, indeed, Newton's interpretation of it was correct. Looking back over the twenty-four comets that had been recorded as invading the precincts of space set aside for the earth, he found that three of them had traveled a similar path and all the others diverse paths.

"Applying Isaac Newton's law to me, he said that I was traveling thirty-four miles a second when I was nearest the sun, and that I had turned round and was headed for the regions whence I had come. He said I would travel out into space some three billion miles, my gait slowing down as I journeyed, and that when I got ready to make the turn to come back I would be loafing along at the celestial snail's pace of a mile a second.

PREDICTED 75 YEARS AHEAD

"Furthermore, he figured out my mass and many other details about me. Then he said that if he was right I would come back in about seventy-six years, the exact month of my coming depending on how much influence Jupiter and other planets would have upon me, which he had not had time to calculate.

"I knew that he had fathomed my mystery and solved my secret. But the people of the earth did not. They said: 'Oh, yes, Halley is a cheap-John notoriety-seeker. He is trying to get fame by a prediction that will attract attention, but he postpones the date of the comet's reappearance to a time when he is dead and his forecast forgotten!'

"But Halley 'stood pat' and called on an impartial posterity to witness that it

Photograph from Yerkes Observatory

A COMET WHICH LOST ITS TAIL AS IT FLEW AWAY—A SORT OF TADPOLE OF THE HEAVENS

Before the time of Halley the visitations of comets were looked forward to with dread. So ephemeral are most of them, however, that Barnard has observed a central passage of one of them over a star of the ninth magnitude, yet the star remained distinct and seemed to be floating through the comet instead of the latter's passing before it.

was an Englishman who had first predicted the return of a comet. Sure enough, in the language of the street, 'he had my number.' With less proportionate departure from his schedule than the Congressional Limited makes in its Washington-New York run, I reappeared, having traveled some seven billion miles in the interim. So I have to admit that Halley must have known what he was talking about."

SIRIUS, KING OF THE STARRY EMPIRE, TESTIFIES

The next witness is a star—Sirius by name. His evidence may be somewhat self-incriminating, but perhaps it is even more valuable therefor. It makes the seven billion miles that Halley's comet travels between its earthly visits seem only a morning constitutional. Here's his testimony:

"For untold centuries I had been shining down upon the sons of men with my bluish-white light. I was the king of kings of the starry empire, ruling my own constellation, *Canis Major*, and at the same time excelling all of the other stars in the heavens for brightness. I am third among fixed stars—that is, those outside the solar system—in nearness to the earth, but I was to men only a star and nothing more. They called me the 'Dog Star' and said my constellation was one of the hounds of Orion.

"But one day that man they call Edmund Halley got to studying my habits. He made a series of notations in the year 1718 to the effect that I was not behaving as fixed stars are supposed to deport themselves, drawing attention to the fact that I frequently changed my position on the path I was traveling. He hinted that it might be that I was departing from the straight and narrow

Photograph from Yerkes Observatory

THE MOON AT EIGHTEEN DAYS OLD

By measuring the length of their shadows, astronomers have been able to determine the height of the mountains of the moon. Mount Newton is 24,000 feet high, and there are twenty-eight that are more than three miles high. There are volcanoes on the moon with diameters of 125 miles.

way, though he made no charges that such was the case.

"More than a century later another astronomer came along—Bessel was his name—and he undertook to interpret my behavior. Although I was forty-seven trillion miles away from him, he and his pupil, Peters, pronounced me a 'gay dog,' with an affinity they could not see, though only because they lacked telescopes powerful enough. They said my affinity and I were coming in the sun's direction, overtaking that luminary at the rate of nearly six miles a second, and that we traveled around a common center of gravity once every 48.8 years.

"Another half century passed, and meanwhile telescopes were undergoing improvement. The circumstantial evidence against me was mighty strong, but still no one had yet seen my affinity, and I felt pretty safe. Then came along that gifted optician, Alvan G. Clark. He was adjusting what is now the Dearborn Observatory telescope. When he trained that instrument on me, I saw that the jig was up with my secret. My affinity herself was seen, and I have to admit that Bessel and Peters knew what they were talking about."

Photograph from Yerkes Observatory

THE HOME OF THE WORLD'S GREATEST REFRACTING TELESCOPE

The Yerkes Observatory, at Williams Bay, Wisconsin, is one of the finest in the world. It houses the big refracting telescope shown on page 161 and many other heavens-searching instruments. The big dome at the right is constructed so that it can be revolved, thus bringing the shutter opening over the skyward end of the telescope, whatever the position. The floor of the dome can be raised and lowered, so that the observer can always get to the eye-piece without difficulty (see text, pages 160 and 162).

The next witness is a planet, Neptune (see pages 167 and 168).

NEPTUNE TELLS HIS STORY

"If you please, sir, I long flattered myself with the thought that I was an uncle that you Earth-ites never knew you had. I am an elder brother of Mother Earth, though for ages and ages she and her children never suspected my existence.

"But back in the 'forties' of the nineteenth century my brother Uranus overtook me in our Marathon around the sun. Though our track is a billion miles wide and he has the rail, yet whenever he passes me I fret him so much that he gets a case of 'nerves.'

"Two astronomers, Adams of England and Leverrier of France, each working without knowing that the other was engaged on the same problem, undertook to diagnose my brother's case of nerves and to explain his perturbations. Each finally reached the conclusion that the trouble was caused by me, as yet an undiscovered planet.

"They figured that I, though undiscovered, must be nearly a billion miles farther out in space than Uranus; that I must be eighty-five times as big and sixteen times as heavy as the earth. They also calculated that I must have a year twice as long as that of Uranus and 165 times as long as the earth's.

"They said that the perturbations of Uranus were due to the fact that every now and then he got between the sun and this hypothetical me, and that the rival pulls of the sun and myself upon him were responsible for his nervousness. And then they, in effect, made a most audacious prophecy. They said that if they were right about it I would put in my appearance at a certain hour, on a certain day, in a certain spot of the heavens, to answer whether their conclusions were right or not.

"And, sure enough, I was right there, Johnny-on-the-spot, exactly on schedule time and in my assigned position. I am quite ready to testify, therefore, that a man who can project his mind nearly three billion miles into space and recognize my unseen presence by the effect I have on my brother comes pretty near to knowing what he is talking about."

Our next witness as to the credibility of astronomers is a ray of light. We will hear its story:

"Yes, I am a ray of light. Once men thought I was instantaneous. They tried by various devices and expedients to ascertain whether I was or not. But by no experiment they could make were they able to discover that it required any interval of time for me to pass from one place to another.

"However, a man by the name of Roemer finally found that an eclipse of Jupiter's moons seemed to occur about sixteen minutes later when the earth was on the side of the sun away from Jupiter than when on the side nearest that planet.

"He concluded that this was not because the moons were behind time, but because it took me sixteen minutes longer to come to the earth when crossing its orbit than when not having this extra distance to travel. Here was evidence that I was not instantaneous and indications that I travel at the rate of about eleven million miles a minute.

"But these astronomers were not satisfied with that deduction or the tests that followed. Finally Dr. Simon Newcomb and his associate, the talented Professor Michelson, decided to put me to a test I could not dodge.

DEVISING SPEEDOMETER FOR LIGHT

"They erected a great revolving mirror in the grounds at Fort Myer, overlooking the Washington Monument, 2¼ miles away. At the latter's base they set up a stationary mirror. Then they turned the revolving mirror at the rate of 250 revolutions a second, which sent me hurtling through space toward the fixed reflector. It caught me and hurled me back as though it were a tennis player and I the ball. If on returning I should reach the identical spot on the revolving mirror from which I had departed, they would know that I was instantaneous.

"On the other hand, if I did not come back to that identical spot, they could conclude that it took me some time to make the trip—the time represented by

the interval required for the revolving mirror to move the distance between the spot of my departure and that of my return. They found, by noting the direction I was hurled after returning, that the mirror had turned 2¼ degrees between my going and coming, which, at 250 revolutions per second, amounted to 1/40000th of a second. I had traveled 4½ miles in that time. So they knew that my velocity is 186,330 miles per second — seven times around the world before you can say 'Jack Robinson'! Thus was Roemer's deduction conclusively sustained.

"Then other men invented a wonderful instrument called the spectroscope which forces me to write my life story on a photographic plate (see page 162). By this means they can tell whether I originated in an incandescent gas or from a solid body; whether or not I came through a cool gas in leaving the star that started me; and, if, so, whether that gas was under pressure or free.

"Now every message I bring, whether from the nearest planet, the farthest star, or the remotest nebula, can be decoded and read.

"In the words of Abbot, the message may be faint and hard to read, but it tells of the materials of which the stars are made, their temperature, their velocity, their brightness, their distance, etc."

A WIRELESS WAVE WITNESS

The last witness to the credibility of the astronomer is the electromagnetic wave. It deposes as follows:

"Yes, I take my hat off to these astronomers. After that canny Roemer proved that light is not instantaneous, another eminent scientist undertook to find out what it really consists of. By purely mathematical processes, this Mr. Clerk-Maxwell came to the conclusion that light is a matter of waves, some of them inappreciably short and others tremendously long; many too short to be seen and some too long.

"I knew he was getting close to my secret, for I am a long wave, sometimes many miles long, whereas the X-rays are often less than the billionth of an inch in length. Then came another man, Hertz by name. He placed a great sheet of metal against the wall of a room and sent me toward it. I was reflected like sound by a sounding-board. There were two points in the room where the spark would not jump the gap. They were half a wave-length distant from one another. He was thus not only able to detect me, but to measure my length and my velocity.

"Then Branley found how to make an extremely sensitive detector which would catch me. Sir Oliver Lodge developed this into a coherer and employed it in signaling. Wireless telegraphy followed apace, and every boy who has a wireless set uses me because these astronomers, mathematicians, and physicists calculated, detected, and harnessed me."

Thus endeth the testimony, which could be added to, corroborated, and reinforced a thousandfold.

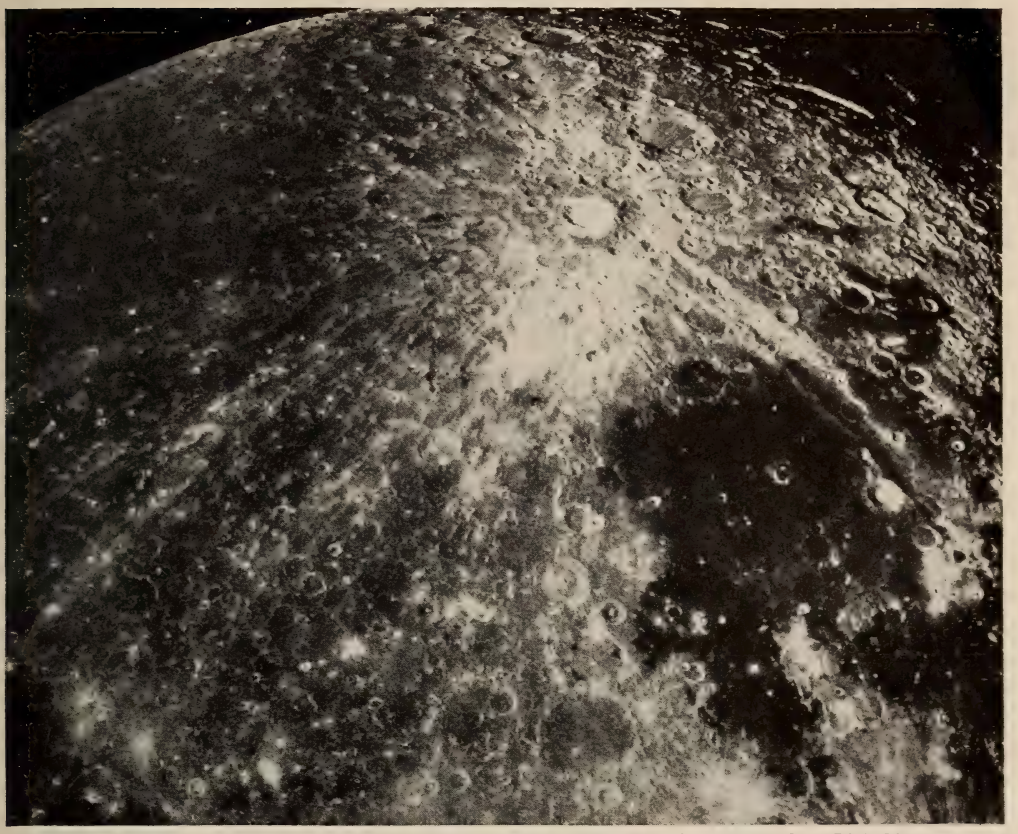
A PENETRATING EYE

A visit to an astronomical observatory and a study there of two or three of the instruments with which the astronomer works gives some clue to the secret of the vastness of his power, as compared with the layman's, in penetrating the mysteries of space.

Of course, the first thing that claims our attention is the big equatorial telescope, which multiplies the power of the astronomer's eye as much, perhaps, as a locomotive throttle multiplies the power of an engineer's arm. It is a far cry from the lens fashioned from a block of ice, with which Metius concentrated the rays of the sun and set fire to a piece of wood, to the great 100-inch reflecting mirror of the new Mount Wilson telescope (see pages 164 and 165).

The pupil of the human eye is about one-fifth of an inch in diameter. It brings to a focus on the retina only so many rays of light as fall within such an area. If it were one inch in diameter and could bring to a focus all the rays entering it, our vision would be twenty-five times as strong; if six inches, and the rays entering could be centered on the retina, we could see an object nine hundred times as faint as those visible with the unaided eye.

We cannot regulate the size of the pupils of our eyes at will, but we can



Photograph from Lick Observatory

HOW THE MOON LOOKS THROUGH A 36-INCH TELESCOPE

A day on the moon is four of our weeks long. If our mountains were as high in proportion to the size of the earth as those on the moon, they would be fifteen miles high; a man there would weigh only as much as a five-year-old boy here. Note the size of the sphere in the telescope by extending the arc in the upper left-hand corner into a circle (see page 165).

build an artificial pupil that serves the same purpose. Men call such artificial pupils telescopes. Imagine trying to fill a narrow-necked bottle by catching raindrops as they fall. Rain falls all around, but only a few drops go into the bottle. Put a wide-mouthed funnel into the neck of the bottle and see how much more water you catch. The telescope is merely a light funnel, wide-mouthed enough to catch many rays of light and to bring them so close together that they can all enter the pupil of the human eye.

Many of these huge instruments have tubes of greater diameter and length than the dimensions of the most powerful gun ever built. They have grown larger and stronger in a way that is startling. In 1861 the 18-inch Dearborn telescope was the biggest in existence. It was when adjusting that instrument that Alvan G. Clark discovered the elusive companion of gay Sirius (see pages 154 and 155).

THE BIG YERKES INSTRUMENT

Typical of the big refracting telescopes is the 40-inch equatorial at the Yerkes Observatory. The outstanding impression one gets when studying the surpassing delicacy of its mechanical manipulation is that our knowledge of the infinitely large comes from our mastery of the infinitely small (see page 161).

The big lens of this instrument weighs a thousand pounds and is carried in the upper end of the six-ton, 62-foot tube, which is 52 inches in diameter at the center. To train this big spyglass on a

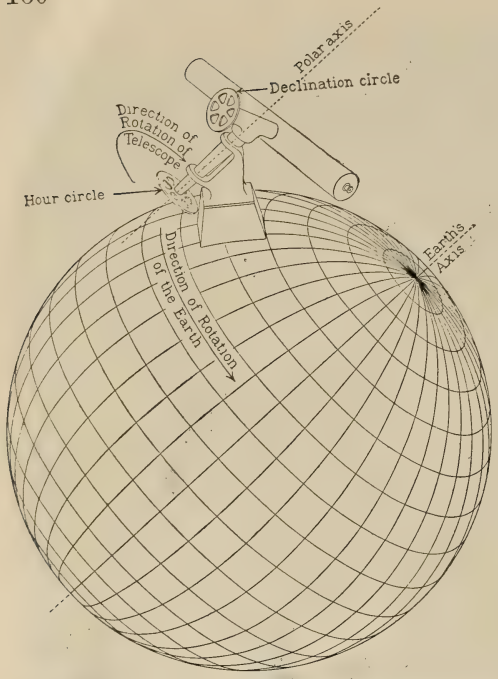


DIAGRAM SHOWING THE USUAL METHOD OF MOUNTING A BIG TELESCOPE

The big telescopes are so mounted that the principal axis is on the meridian and parallel to the axis of the earth. Then, as the earth moves from west to east, a clock movement carries the barrel of the telescope in the opposite direction, so that it always points at the same spot in the sky as long as an observation is being made. The other—or declination axis—is at right angles to that of the earth, and is used to train the instrument on the path of the star under observation.

star and keep it there requires that it be mounted on two bearings, one at right angle to the other.

To understand the function of these two bearings, imagine yourself on a merry-go-round, looking through a spyglass at a house away off in the distance. In order to keep the house in the field of vision, you would have to move the big end of the glass backward as you traveled forward. The earth is the merry-go-round and the star is the house in the distance.

So there has to be one bearing that will permit the line of vision in the telescope to move backward just as fast as the earth moves forward. Our terrestrial merry-go-round is rotating at the rate of about 1,040 miles an hour at the Equator, but the sun and the stars are so distant that we seem to pass them very slowly, though their speed as well as their brightness is magnified in the telescope.

To keep the telescope moving backward as the earth flies forward is at once a very big and extremely delicate task. Imagine swinging a huge instrument 64 feet long and weighing, with its movable parts, 22 tons, through the air with such nicety of poise that the spider thread in the eyepiece, which is 1/6000 of an inch in diameter, is kept constantly cutting in two a star image that is 1/2500 inch in diameter.

Yet that is what is done at the Yerkes Observatory with the big telescope. In the case of the Mount Wilson 100-inch reflector, the parts to be moved weigh 100 tons. In all the instruments the movement is made by a huge clockwork that carries the big barrel as steadily as ever an hour-hand of a full-jeweled watch was driven by its mechanism.

"SHOOTING" THE STARS

But if we imagine ourselves in the merry-go-round and looking at the house in the distance through a spyglass, we not only have to turn it backward as we move forward in order to keep the house in view, but we cannot see it at all if the glass be pointed too high or too low. However, when we get our spyglass at the proper elevation we do not have to raise or lower it thereafter.

So also with the big telescope. The astronomer has to put it in the nightly path of the star across the sky before he can follow it in its journey. To do this requires a second bearing, or axle.

The observer consults his star tables to see exactly how far above the Pole the star's path is. He then moves the lever of an electric motor, and the great tube begins to rise until it is trained on that path. A big graduated circle, distinctly marked and numbered, tells the approximate position. For the exact position, it is adjusted with a slow motion, the adjustment being determined by a very fine circle, the marks on which are read through microscopes.

The astronomer now consults his star tables again and finds the star's position

Photograph from Yerkes Observatory

THE LARGEST REFRACTING INSTRUMENT IN THE WORLD: THE YERKES 40-INCH TELESCOPE

This "big gun" of the astronomical world is a Brobdingnagian eye, 40,000 times as powerful as the human optic. A human eye to be as powerful as it is would have to be 25 feet in diameter, and the man who could possess such an eye would have to be 1,200 feet high (see also page 158).

in its apparent nightly path at that moment. He pulls a switch, and the big instrument sweeps along the star's well-beaten track until its approximate position is reached. The slow motion is brought into play, and the big barrel swings directly on the star, which the clockwork, in turn, causes the telescope to follow as it journeys across the heavens.

Suppose that with your merry-go-round spyglass you should have two spider threads crossing one another at right angles, and that the house you were looking at was a mile away; and then suppose that the glass was so powerful that you could see the head of a nail at that distance; and then further suppose that you kept the intersection of the two spider threads trained on that nail-head. Then you have a fair measure of the delicacy of the adjustments of the Naval Observatory, Yerkes, and Mount Wilson telescopes.

Formerly the floor of the observatory was stationary, on a level so low that when the instrument was pointed at the zenith a man sitting in an ordinary chair could look into the eyepiece: but when looking at a star nearer the horizon the observer had to climb up a glorified step-ladder twenty or thirty feet high and observe his star from such an unstable perch.

Now, however, the floors of modern observatories can be raised and lowered like an elevator. The domes are made to revolve, so as to bring the shutter-opening over the object end of the telescope (see page 161).

TAKING PICTURES OF DISTANT WORLDS

Many of the star observations are not made with the eye. A majority of them are made with a photographic attachment. Often a photographic plate on the big telescope will record in minutes what would require days to work out with eye observations. At the Mount Wilson Observatory some photographs are taken that have to be exposed for four nights.

Think of the wonderful perfection of a driving clock that makes possible four all-night exposures of a given group of stars, no adjustment being required for speed, but the photographer having to keep a constant watch for such changes as the quality of the air, so as to adjust the instrument to meet them!

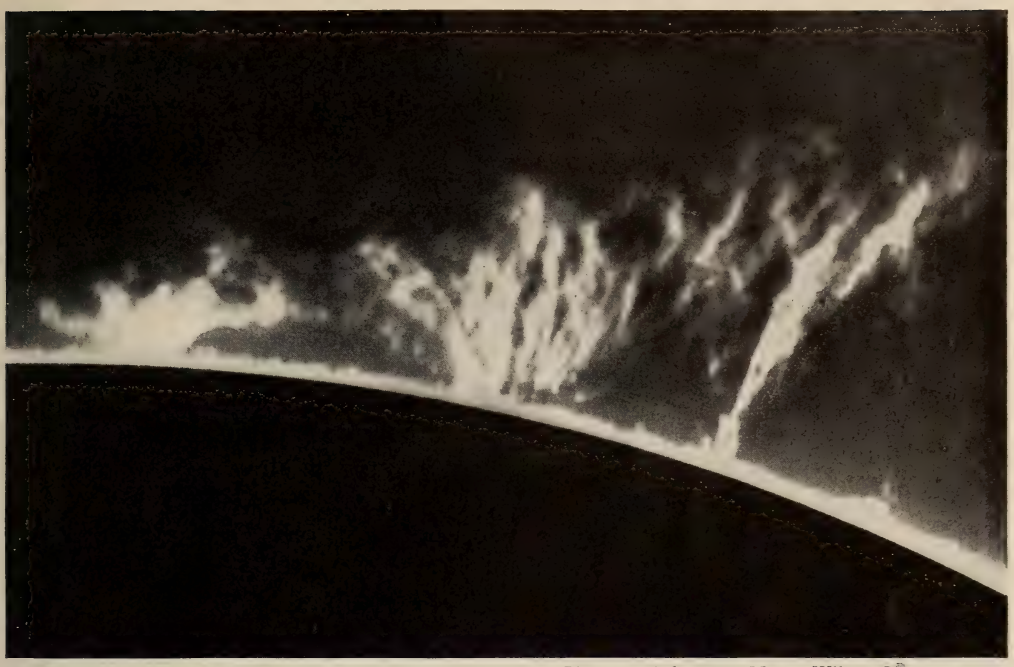
Powerful as the big telescopes are, they have their limitations. An instrument that magnifies six thousand diameters might be employed, theoretically, in low-altitude work. Such a telescope would bring the moon to a distance of only forty miles.

ATMOSPHERE LIMITS THE TELESCOPE

But the power that would bring the moon so close, except on high mountains, would also magnify greatly the tendency of the air to obstruct our sight; and, as the late Dr. Simon Newcomb once said, the moon might be brought that close, but our view of it would be as though we were looking at it through a tiny pinhole and several yards of running water. Under such a view the whole atmosphere would look like the air over a hot automobile engine or above a stove—full of heat waves. It is those waves that cause the fixed stars to twinkle.

The observatories on mountains and high plains get rid of so many atmospheric difficulties that it is possible to magnify one hundred diameters for each inch of diameter of the mirrors. The big 100-inch reflector on Mount Wilson therefore has a magnifying power of ten thousand diameters. In other words, an object two miles distant would appear as big as if it were only 12½ inches in front of the unaided eye. The big mirror will gather in a quarter of a million times as many rays as the pupil of the eye receives unaided.

But next to the big equatorial telescope in an observatory the spectroscope claims chief interest. A wonderfully versatile instrument it is in applying the third degree to light. Light is composed of waves of an infinite variety of lengths. The shortest wave-length the eye can see is 1/70000 of an inch long and the longest is 1/40000; yet the Annapolis Wireless Station makes use of wireless waves more than ten miles long, and the Bureau of Standards employs X-rays a billionth of an inch short (see also page 158).



Photograph from the Mount Wilson Observatory

TERRIFIC EXPLOSIONS ON THE SUN

Think of eruptions so powerful that they hurl streams of gas farther from the sun than the moon is from the earth, with a velocity frequently of a hundred miles a second and sometimes of two hundred. They leap up in great jets and flames, often changing their appearance greatly in a quarter of an hour. The highest "prominence" here depicted reaches about ninety thousand miles into space (see page 164).

The spectroscope takes the visible rays and their closest neighbors above and below—the ultra-violet and the infra-red—tears them into shreds, and assorts them according to their wave-lengths with as much certainty as a banker assorts the different denominations of his money.

It not only analyzes the light that comes from the sun and the stars, but lights that come from all the earthly elements. It tells with equal fidelity whether a red particle is dried blood or colored paste, or whether a ray of light came from iron or from soda. It once revealed new lines in an European mineral water. Forty tons of the water had to be evaporated to get two teaspoonfuls of the element, but the spectroscope had detected its presence.

In our childhood days we all recited the stanza, "Twinkle, twinkle, little star"; but we no longer need to "wonder what you are"; for now, as one authority tells us, "Unto the midnight sky we the spectroscope apply."

A photograph of the sun through some of the more powerful spectroscopes shows several million of the telltale lines. Sodium has only two, calcium has seventy-five, and iron has more than two thousand. Thirty-nine of the common elements in the earth show lines that have perfect matches in position, arrangement, and character in the sun.

HOW LIGHT IS TORN APART

There are three classes of spectroscopes: In the one type the light is broken up by being passed through prisms; in the second class the light ray is torn apart by the lines of a diffraction grating through the same process that gives the opal its color; in the third kind the light is separated by being passed through a "stairsteps" of optical glass.

The telescope has proved that the same laws of mathematics and mechanics that govern the fall of an apple, the dropping of a tear, or the rise of steam from a tea-

Photograph from Press Illustration Service

"THE SUPREME COURT OF THE HEAVENS"

This hundred-inch mirror, which has just been installed at Mount Wilson Observatory, California, will bring a hundred million new stars into the ken of man. Are the nebulæ masses of gas or are they other universes in the great sea of infinity? Are the dark spots known as "coal sacks" holes in the heavens through which astronomers can peer into starless space, or are they black masses of gas curtaining off from our view worlds beyond them? Scores of such questions have arisen and are to be submitted to this wonderful mirror for answer.

kettle apply as well to the sun of the day and to the stars of the night. But the spectroscope proves that the chemistry of coal-stove and test-tube is also the chemistry of sun and star. With it man went 93,000,000 miles away to find the helium that is in the very air we breathe and that soon will give buoyancy to the dirigible airships of our navy.*

FIERY FLAMES LEAPING INTO SPACE

It is thirty years since solar prominences, those fiery flames that shoot out from the sun to distances greater than that from the earth to the moon, were first discovered. Formerly they could be observed only during the few minutes of total eclipses of the sun, and it was possible to study them for only fifteen minutes in a quarter of a century. Then Professor Huggins found that by screening off the disk of the sun and widening the slit of the spectroscope we may see these prominences at any time.

With the spectroheliograph it is possible to get pictures of the sun and these prominences in the light of a single substance, so that the astronomer is now able to study them any bright day. Think of explosions so powerful that they hurl material three hundred thousand miles into space with a velocity of two hundred miles a second! (see page 163).

Not only does the spectroscope tell us of the materials of which the sun and the stars are composed, but it also tells us whether a star is headed toward us or

*See "Helium—the New Balloon Gas," in the NATIONAL GEOGRAPHIC MAGAZINE for May, 1919.

TRANSPORTING THE PRICELESS HUNDRED-INCH MIRROR FROM PASADENA TO MOUNT WILSON (SEE PAGE 164)

The motor truck carrying this treasure of the astronomical world up the great mountain was geared down to four miles an hour.

away from us, is coming or going, and how fast.

Did you ever notice, in traveling, when meeting a train on a double-tracked railroad, how much higher the pitch of the bell is as it comes toward you than when going from you? More sound-waves reach your ears as the train comes toward you than as it goes from you. The same is true with the light-waves in the spectroscope. If the star is coming toward us, the lines shift toward the violet or higher pitch; if receding, toward the red. And these shifts are always proportional to the speed of the star; so that not only the coming and the going are recorded, but the velocity as well.

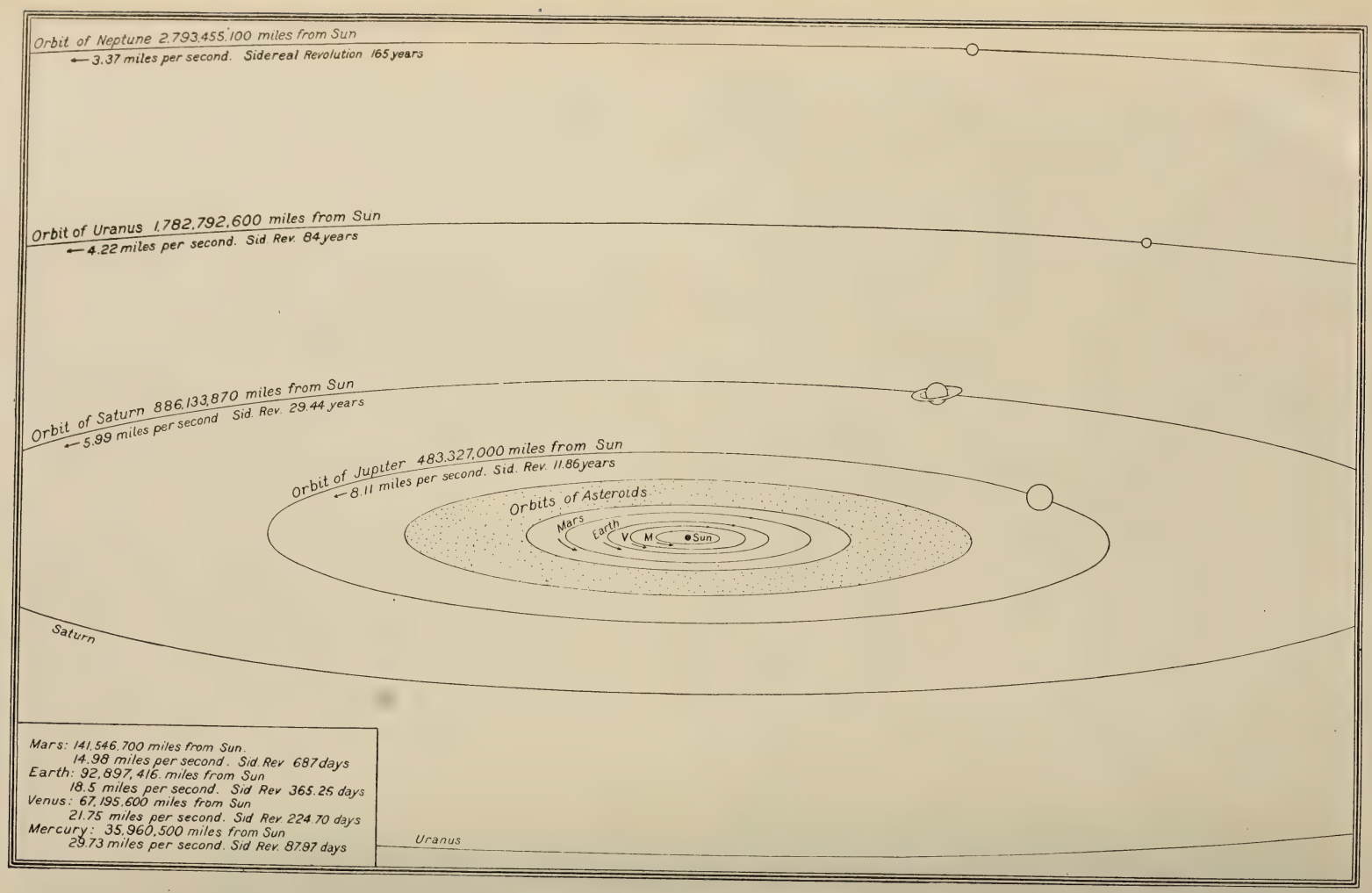
THE PATIENCE OF ASTRONOMERS

The patience with which astronomers make their studies in their unrelenting pursuit after truth is unsurpassed in any field of human inquiry. At the Naval Observatory in Washington computations based on a single series of observations have been in progress for a period of nineteen years, but are not yet completed. The results of the various expeditions that observed one of the transits of Venus were for half a century under calculation and comparison.

A single investigation of the inequalities of the changes of the moon required 9,000 hours of hard calculations by a trained mathematician. There were 13,000 multiplications of series, containing some 400,000 separate products. The whole computation required the writing of nearly five million digits and plus and minus signs. And even then the author felt that much remained to be done before he could construct the tables he had undertaken to make.

OUR STUPENDOUS INSIGNIFICANCE

Before starting out to explore the heavens and to make a biographical survey of its more prominent folk, one here might well revert to that old, old question: "What is the good of it all?" Are


Orbit of Neptune 2,793,455,100 miles from Sun
← 3.37 miles per second. Sidereal Revolution 165 years
Orbit of Uranus 1,782,792,600 miles from Sun
← 4.22 miles per second. Sid Rev. 84 years
Orbit of Saturn 886,133,870 miles from Sun
← 5.99 miles per second Sid. Rev. 29.44 years
Orbit of Jupiter 483,327,000 miles from Sun
← 8.11 miles per second. Sid. Rev. 11.86 years
Orbits of Asteroids
Mars
Earth
V
M
Sun
Saturn
Mars: 141,546,700 miles from Sun.
14.98 miles per second. Sid. Rev 687 days
Earth: 92,897,416. miles from Sun
18.5 miles per second. Sid Rev 365.25 days
Venus: 67,195,600 miles from Sun
21.75 miles per second. Sid Rev 224.70 days
Mercury: 35,960,500 miles from Sun
29.73 miles per second. Sid Rev. 87.97 days
Uranus

Drawn by Albert H. Bumstead

AN ILLUSTRATION OF THE PATHS, OR ORBITS, OF THE EARTH, MOON, AND PLANETS AROUND THE SUN

The orbits of the planets are shown in their relative sizes. While these orbits are elliptical, the ellipses are so little elongated as hardly to be distinguishable from circles in a drawing. The planets are here drawn much exaggerated in size (see page 180). Indeed, if we reduced them to the scale we have used for their orbits they would disappear entirely. It is amazing to think that there may be millions of other solar systems as large or larger than our own (see page 169).

the fruits of astronomy worth all the labor and thought expended on it? The thoughtful man, realizing how vastly it enlarges his appreciation of the great First Cause, how wonderfully it teaches us the stupendous smallness of our place in the universe, finds it both good and profitable.

But even to the man who looks for direct physical benefits and every-day good, its worth will appear. Parallels of latitude and meridians of longitude depend upon it, time signals are born of it, safe navigation at sea were impossible without it. State and national boundaries are often fixed by it.

Yet the indirect benefits excel, if that may be, the direct ones. When Roemer discovered the velocity of light, little did he suppose that the interpretation of his discovery would lead to wireless communication.

It is interesting to have a look at our own earth in its relation to the worlds that people the sky. When a mighty storm sweeps over the ocean, when a great war devastates a continent, when a Katmai blows off her head, when an earthquake destroys a populous city, men stand overwhelmed and awed at the spectacle!

But how little and insignificant are such forces, measured by the majestic might of the earth as it sweeps on its course around the sun!

An eminent physicist has estimated that the power developed by a million Niagaras in a million years would not equal the energy expended by the earth in a single second as it circles round the sun.

And yet so perfect is the mechanism that, flying around its axis at an equatorial speed of more than a thousand miles an hour, and around its orbit at more than eleven hundred miles a minute, all the mundane influences of which astronomers know could not change the length of its day as much as a second in a hundred thousand years.

WHERE THE EARTH BECOMES A DROP IN A RESERVOIR

But as soon as one looks out into space with the eye of the astronomer, there comes the discovery that in all its seeming greatness the earth is so small that even a telescope ten thousand times as powerful as the strongest instrument now in existence would not reveal it to an astronomer on any fixed star.

Compared even with the sun, our planet's insignificance becomes evident. More than 1,300,000 spheres like ours would be needed to make a bulk equal to that of a single sun (see pages 166, 180).

Perhaps our most graphic picture of the solar system is given by Herschel. Imagine a circular field two and a half miles in diameter; place a library globe two feet in diameter in the very center; eighty-two feet away put a mustard seed. The globe will represent the sun and the mustard seed Mercury.

At a distance of 142 feet place a pea, and another at 215 feet. These will represent Venus and the earth, both as to size and distance. A rather large pinhead at a distance of 327 feet will speak for Mars, and a fair-sized tangerine a quarter of a mile distant will stand for Jupiter. A small lemon at two-fifths of a mile will play the rôle of Saturn, a large cherry three-fourths of a mile will answer for Uranus, and a fair-sized plum at the very edge of the field will proclaim Neptune (see pages 157, 180).

SIGHT-SEEING THE SOLAR SYSTEM

In our celestial tour there is time for only a passing reference to the moon and the planets. Eighty moons would be required to make one earth. A player there could throw a ball six times as far as it can be thrown on American diamonds. A man weighing 150 pounds there would weigh 900 on the earth. The earth receives as much light and heat from the sun in thirteen seconds as it gets from the moon in a whole year.

Mercury is almost the "unseen planet." Being very close to the sun, it is nearly always engulfed in the rays of the dawn or overwhelmed in the haze of twilight, and thus rarely gets a chance to shine out. At some stages of its journeyings Mercury almost breaks the solar system's speed limit, dashing wildly along at a pace of more than two thousand miles a minute.

Venus was an unusually interesting object in the sky during July of this year. Not again until February, 1921, will it appear as bright and fair in the evening sky. It has phases like the moon, and these can be seen even through a good field-glass. Its day is believed to be the same length as its year, which is 224 of our days.

WILL A STAR FORETELL OUR WEATHER?

Mars always challenges interest. Its day is about the same length as ours, but its year is nearly twice as long. Although astronomers generally take less interest than laymen in the surmise as to whether other planets and stars are inhabited, since they, more than laymen, realize that this is a problem that must in all human probability remain unsolved, the question is more often asked about Mars than any other planet.

It is quite generally believed that Mars has ice-capped poles. The telescope reveals white spots at the poles that have every appearance of being like our ocean Polar region. They advance toward the Equator in winter and retreat in summer. In the summer of 1916, Pickering, who, with Lowell, has led the school of astronomers who believe they can see canals on Mars, said that he found the white caps stretching farther down toward the Equator than he had ever seen them before.

He said that if there was any connection between the weather of Mars and that of the earth, the winter of 1916-17 would be the coldest in many years. And it was. May it yet be possible to do long-range weather forecasting on the earth by studying the waxing and the waning of the ice-cap on the South Pole of Mars?

Swinging around the sun at a distance five times as remote as that which separates the earth from the source of its light, having a year nearly twelve times as long as ours and a day less than half as long, Jupiter is as much bigger than the earth as a tangerine is larger than a pea. He has nine satellites, seven of them revolving around him in one direction, the other two pursuing an opposite course. Saturn, with its wonderful rings, is one of the finest objects in all the skies through a telescope of even moderate size. Uranus is barely visible to the naked eye, while Neptune (see page 157) can be seen only with a telescope.

Whether studied as the head of the planetary family to which the earth belongs, or whether as an average member of the great household of suns that dwell in the distant skies, Old Sol has many thrills for the student.

To the inhabitants of the earth the fact that he shines is the most important physical consideration in life. From him we derive warmth, light, and power; without him the oceans and even the air itself would freeze; and, of course, under such conditions, life would be impossible.

TIES THAT BIND

With what firm ties he holds his family together well-nigh defies the imagination.

Prof. Charles G. Abbot estimates that a steel column five hundred miles thick would be required to keep Neptune in its path around the sun if the force of gravity were removed. Sir Oliver Lodge has estimated that the pull between the components of the double star Beta Aurigæ is twenty million times as great as the force that keeps the earth in its path.

Prof. F. R. Moulton says that the heat that reaches us from the sun amounts to more than two trillion horsepower, in spite of the fact that two billion horsepower goes off into space for every single horsepower that comes to the earth itself.

While the stars appear to us about as much like the sun as the fireflies of a summer night, yet the patient investigations of astronomers show not only that the sun is a star, but that it is by no means either the largest or the brightest of the celestial family.

Assured that it is a star and knowing that the next nearest one is three hundred thousand times as far away, astronomers addressed themselves to the task of learning about the other stars by studying our own. They found that there are some like it, giving out the same kind of light, though most of them send us, through the spectroscope, messages that tell quite different stories.

With the fundamental facts about the sun in hand, most astronomers are now engaged on star studies. A photographic

Photograph from Mount Wilson Observatory

THE NEBULA IN COMA BERENCIS

A little poleward from a line drawn between Regulus and Arcturus is the constellation Coma Berencis (see the chart on page 170). The nebula shown here is a part of it, and is thought to be so far away that a light ray leaving it today will not arrive on the earth for thirty thousand years. It is the fastest-moving object yet discovered in the heavens. Traveling at the speed it is going in its headlong flight through space, we could go around the earth in one minute.

chart of the whole sky is being prepared by the observatories of the world. This chart requires the taking of 22,000 photographs, each covering four square degrees of sky (see page 178).

MAPPING A UNIVERSE

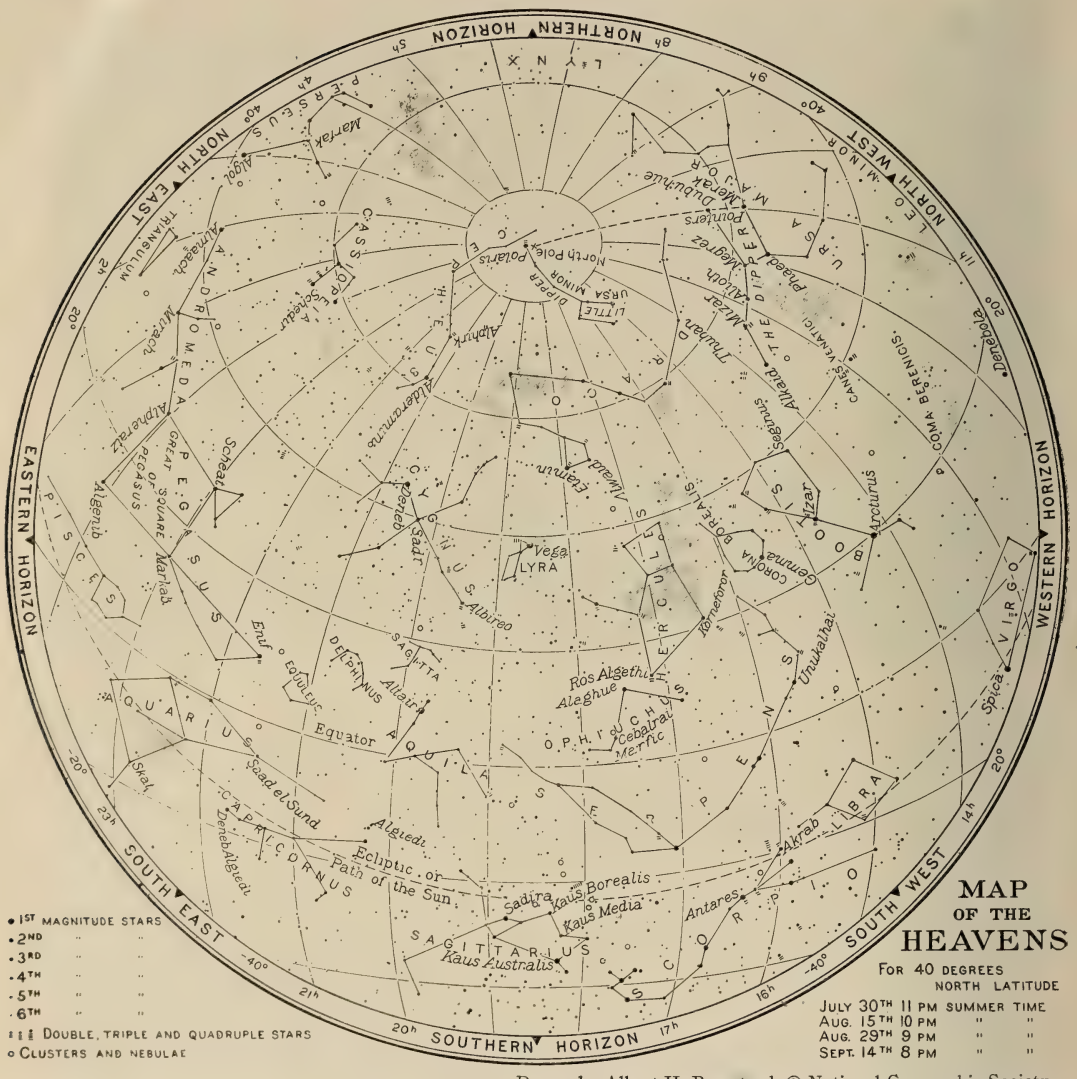
Each photograph has in it several stars whose positions have been fixed by direct observation. From them the position of every other star shown on the plate can be fixed by measuring, with a machine employing high-power microscopes, their exact places in the photograph. The completion of this work will record the position of at least eight million stars.

When we consider the solar system—with its great sun, its eight planets and their twenty-seven moons, and its eight hundred asteroids—as occupying an area whose diameter is nearly six billion miles (some six million times as far as from New York to Chicago), it is amazing to think that there may be millions of other solar systems as large or larger than our own, comparatively close to us as star distances go, though so remote that their planets could not be seen by the astronomers of the earth, even with telescopes as much more powerful than the biggest ones now in use are stronger than the naked eye.

THE ACME OF ISOLATION

So careful an astronomer as Agnes M. Clerke tells us that a skiff in a vast, unfurrowed ocean could not be more utterly alone than is our solar system in its little corner of the universe. She continues:

"Yet the sun is no isolated body. To each individual of the unnumbered stars strewing the firmament, down to the faintest speck of light, . . . it stands in some kind of relationship. Together they master its destiny and control its movements. Independent so far as its domestic affairs are concerned, it is



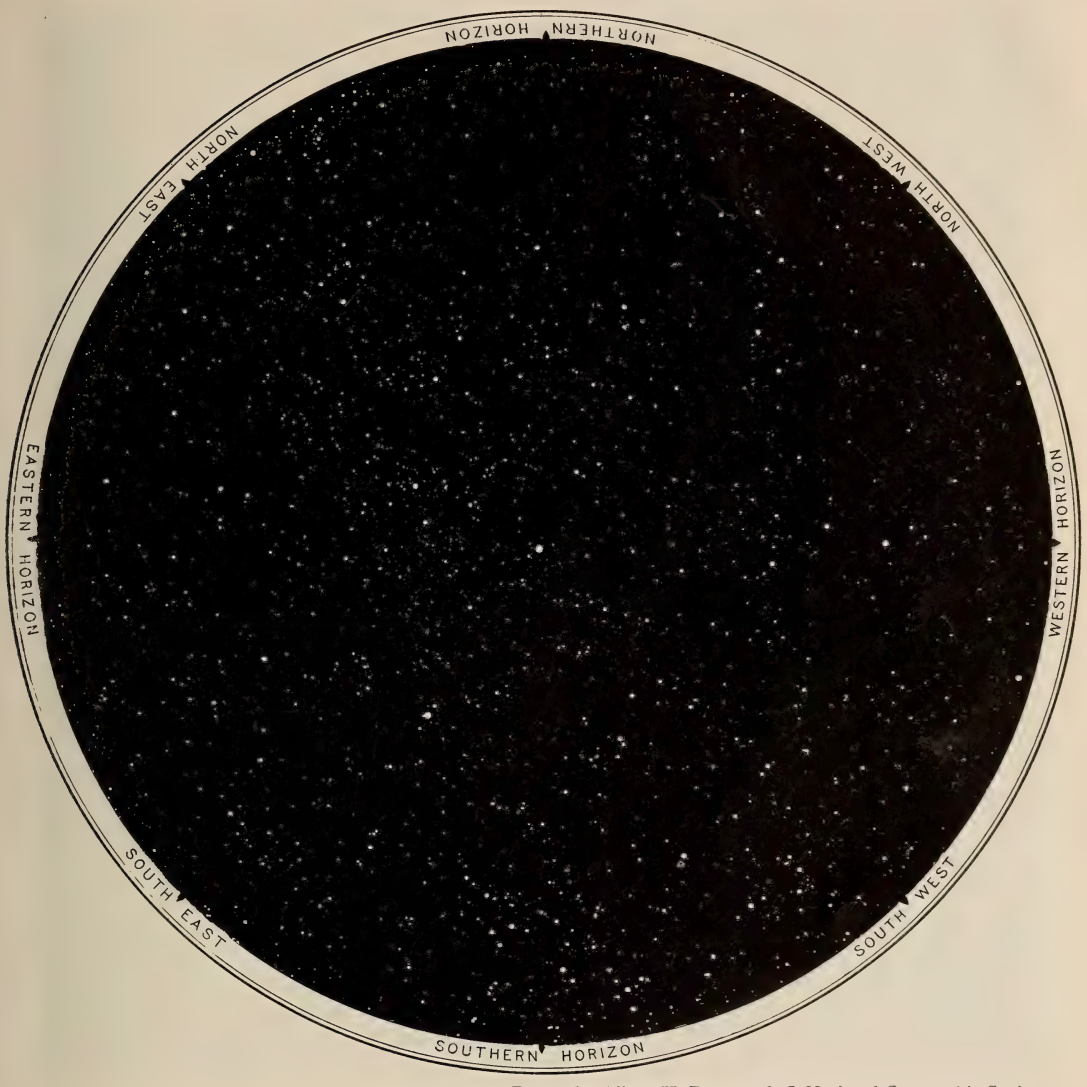
Drawn by Albert H. Bumstead, © National Geographic Society

A CHART OF THE HEAVENS AS THEY WILL APPEAR TO RESIDENTS OF THE UNITED STATES AND SOUTHERN CANADA AUGUST 15 AT 10 P. M., AUGUST 22 AT 9.30 P. M., AUGUST 29 AT 9 P. M., AND SEPTEMBER 5 AT 8.30 P. M.

The lines on this chart corresponding to meridians are separated from each other by the distance the stars appear to move across the sky in one hour. The lines corresponding to parallels show the direction of the stars' paths from the time they rise to the time they set.

By remembering that the stars within the space bounded by two meridian lines sink into the western horizon every hour, and that a corresponding stretch of new sky arises out of the eastern sky in the same time, the major portion of the chart will be usable hours after the time named. This, of course, does not apply to stars near the North Pole, like the Great Dipper. They never set—the daylight merely puts them to sleep.

Do you belong to that innumerable throng who have never made personal friends of the stars? If so, you are missing one of the easiest and most delightful diversions of evenings in the open. The first formality is to meet the Great Dipper, which might be called the supreme announcer. Its pointers, Merak and Dubuhue, will then escort you over to Polaris, king of celestial directions. All the roads of heaven lead to his throne and all the highways of earth are oriented with reference to his position (see pages 173-179).



Drawn by Albert H. Bumstead, © National Geographic Society

A PICTURE MAP OF THE HEAVENS, CORRESPONDING TO THE CHART OF THE STARS PRINTED ON THE OPPOSITE PAGE

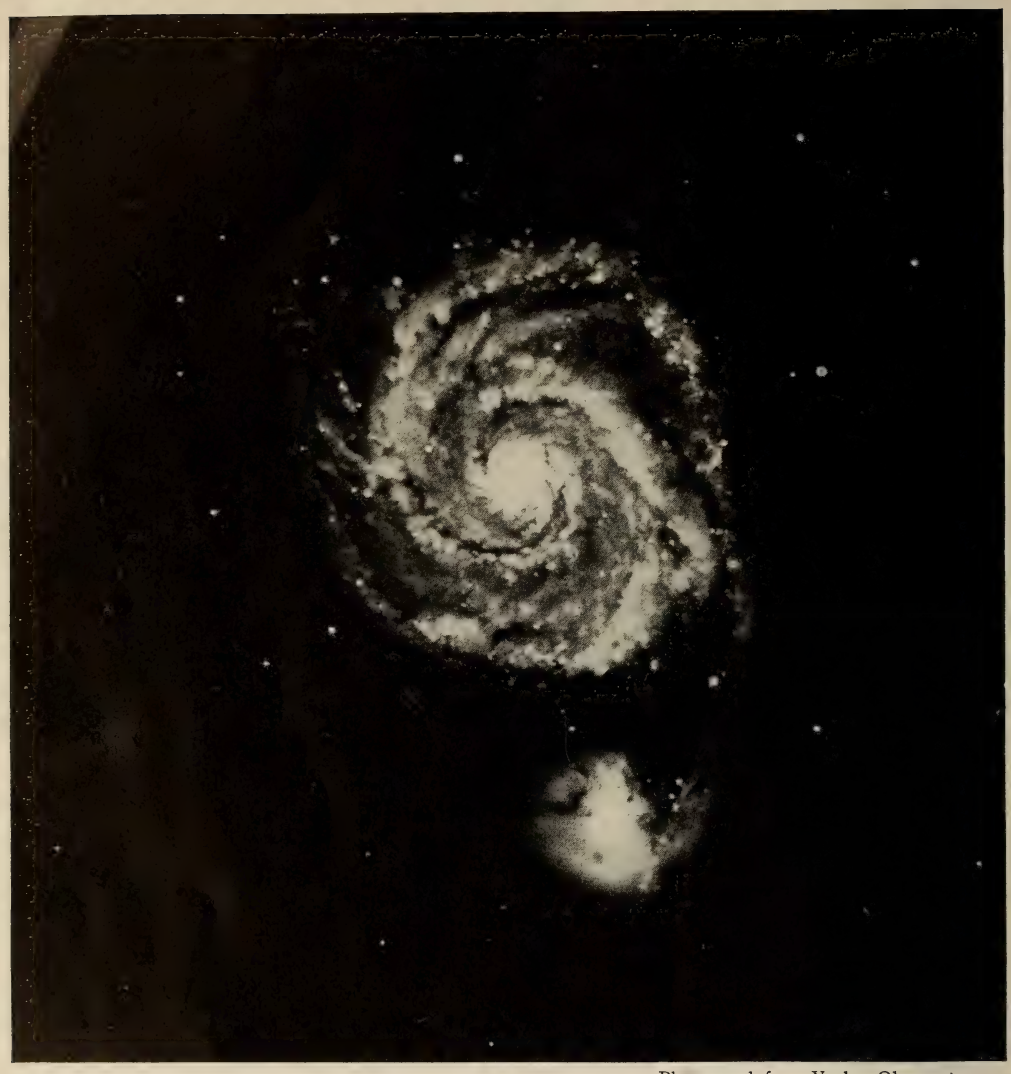
The center of this map, with the bright star Vega outstanding, represents the part of the sky directly overhead, and the circumference represents the horizon. On account of the absorption of light by the atmosphere, the stars near the horizon are rarely visible, and then only the brightest ones. The map, however, is complete down to the horizon. The map is made for latitude 40, but is approximately correct in other latitudes within the United States and southern Canada.

To locate a star or a constellation in the heavens, first find it by name on the chart on the opposite page. You can then easily transfer your eye to the same spot on this page.

After forming a mental picture, face that section of the horizon which is nearest the object and hold the map, so that the corresponding section of it is at the bottom. Then run your eye up from the horizon until you find the star or group that corresponds to the picture.

Vega will interest you greatly. Old Sol is carrying us, and indeed his whole family, in a headlong flight toward her, at a gait of more than 700 miles a minute (see page 172).

The stars that mark the handle of the Great Dipper will take you on their sweeping curve to Arcturus, a sun so bright that it outshines ours, as a flashlight outshines a lightning-bug, yet so distant that it seems only a point of light to us. From constellation to constellation you can go, making acquaintances that will give you the friendship of the royal hosts of heaven all through the years (see page 176).



Photograph from Yerkes Observatory

ONE OF THE SPIRAL NEBULÆ

This wonderful mass of whirling matter is at about the center of a circle that would be made by the continuation of the arc which forms the curve of the handle of the Big Dipper. One of the same type—the great Andromeda Nebula—is said to be approaching the earth at the wonderful speed of 12,000 miles a minute. Astronomers generally hold that of such whirling masses as these are worlds created (see page 177).

bound up, as a star, to the other stars by influences reaching across the unimaginable void that separates them."

A TERRIFYING PACE

Spectroscopic studies and sky observation alike tell us that our sun and his family are all headed in a great migration across the sky toward a point between the constellations of Hercules and Lyra (see picture, page 177).

The speed with which we are traveling in that direction is twelve miles a second. The velocity of an artillery shell is around 3,000 feet a second; that of the sun 63,000 feet. An artillery shell with the velocity of the solar system through space would, according to Kip-

Photograph from Yerkes Observatory

A VIEW OF A NEBULA IN THE CONSTELLATION TRIANGULUM

There are cradles and tombs in the heavens, with mewling infancy, gay youth, settled middle age, mellow advanced years, and lightless death as stages of the journey between them (see text, page 181).

pax, penetrate a sheet of steel four city blocks thick.

Think how far we travel every year and how complex our journey! In the first place, those of us who live near the Equator cover upward of nine million miles in our flight around the earth's axis. In the second place, in our journey around the sun we travel nearly six hundred million miles. While we are doing all this we are also being carried off into new and untried regions of space at the rate of four hundred million miles a year.

Is our great family journey through space along a straight road, or is it revolving around some greater body, even as the earth revolves around the sun and the moon around the earth? The astronomer tells us frankly that if the sun has an orbit its curve as yet defies detection.

Photograph from Yerkes Observatory

A YERKES PHOTOGRAPH OF SOME OF THE NEBULÆ IN THE PLEIADES

Imagine a drop of water expanded into a sort of supersteam so attenuated that it would fill a globe sixty-two miles in diameter. It is believed that some of the nebulæ may be composed of gases as rare as that.

Referring to the picture of the heavens on page 171, and to the map accompanying it, let us survey the sky as it will appear at the hours and on the dates given therewith.

Of course, the Great Dipper will first claim our attention, as it is the principal "landmark" of the heavens. It will be seen westward from the Pole Star, with its Pointers guiding the eye to Polaris and its handle sweeping in a broad curve toward Arcturus and Spica.

THE GREAT DIPPER

The star at the bend of the handle of the Great Dipper is known as Mizar. Insignificant though it looks in its smallness, it radiates more than a hundred times as much light as the sun, and is nearly five million times as far away. Its light has to travel three-quarters of a century to reach the earth. It is a great triple luminary. The combined mass of two of its members is many times as great as that of our sun; they swing around their common center of gravity every twenty days.

Following the line of the Pointers eastward, one's eye picks up Polaris, the only bright star in its neighborhood.

Shining down upon us from a point almost midway between the zenith and the northern horizon in the latitude of Washington, this humble star of the second magnitude tells little of its glory. Yet it is so distant that the light-waves entering the eye as one looks at it today left it forty-five years ago and have been traveling at the rate of more than eleven million miles a minute to reach us.

Photograph from Yerkes Observatory

A VIEW OF THE GREAT NEBULA IN ORION (SEE PAGES 180-181)

"The central portion of the Huyghenian region in the nebula of Orion is the opening of a colossal cavern in the primordial stellar floor. The nebula is no longer a flat surface. One peers within cosmic deeps; one looks into a chasm before which all powers of imagination are submerged, and feasts the eye with supernal splendors. It is like looking in at a door and to the rear of a cave, deep within glittering nebulosity. The chasm is the most beautiful object visible to human sight. Pillars, columns, walls, façades, bulwarks, stalactites, and stalagmites are within deeps of deeps. They glow and shine superbly with pearly light."

Not one star, indeed, but three—a triple sun—is Polaris. Until recently it was supposed to be a double star, but the newer high-power telescopes reveal that the brighter of the two companions has a closer companion of its own.

VEGA AND ITS COMPANIONS

In the zenith is Vega, the bluish-white star of the first magnitude that shines down with beautiful brilliancy from the constellation Lyra, the Harp. Any doubt in identifying Vega, otherwise Alpha Lyræ, can be dispelled by observing the close equilateral triangle formed by it and its companions, Epsilon and Zeta Lyræ, this being the only triangle of its kind in the whole heavens.

If with the unaided eye we viewed the sun from the distance of Vega, it would appear as one of the dimmest stars. Vega is said to be eight million times as far from us as we are from the sun.

Epsilon Lyræ is a double star. Neither Persian, Arab, Greek, nor, indeed, any primitive people, seems to have discovered that fact, though with good eyes it can be seen as such on a clear night. May not this indicate that the eyesight of the human race is improving? With a telescope we can see that each part of this double star is itself a double—in other words, that Epsilon Lyræ is indeed a magnificent system of four suns.

LIGHT THAT MUST TRAVEL 5,000 YEARS TO REACH US

A little past the zenith is the constellation Hercules. It isn't a particularly bright group, not a single star in it being brighter than the third magnitude; but it has an easily found trapezoidal figure of five stars, the base turned toward the north. On the west side of this trapezoid, about one-third of the distance from the base, is what appears to be a faint and fuzzy little spot, visible only on the clearest nights; but train a high-power telescope on it and you will see one of the finest star-clusters in all the heavens.

Ritchey's photograph of this cluster, taken with the big 60-inch Mount Wilson reflector, discloses that it is made up of more than fifty thousand stars, very many of them as big and as bright as our own sun. Photographing the cluster first with plates sensitive to blue light and then with others sensitive to red indicates that they are giant red-and-yellow worlds like Arcturus and Antares.

How far away they are cannot be said, for they are too remote for measurement with the finest instrument yet devised. It is certain, however, that they are at least so distant that the light coming to the earth from them this year may have started on its hurtling journey through space about the time of Joshua's conquest of Jericho.

In other words, if a space-penetrating eye on one of the stars of this Hercules cluster could be looking down on the earth today it might be watching the armies of the Lord encircling the doomed city.

SUNS THAT PUT OURS TO SHAME

To the west of Hercules, easily located by continuing the curve of the handle of the Great Dipper for a distance approximately equal to that which separates Polaris from the nearest Pointer, is Arcturus, king bee of the constellation Boötes, the Hunter.

Of a deep orange color and of the first order of brightness, Arcturus is a sun that makes our own pale in comparison as a tallow dip pales before an arc lamp. Indeed, it is thought to radiate five hundred times as much light as our sun.

Away down toward the southwestern horizon, as viewed from Washington, is Antares, two hours past the meridian. The starry heart of the Scorpion, this blazing sun is fiery red in hue and gives off two hundred times as much light as the orb of our day.

Altair, the bright star of the constellation Aquila, the Eagle, forms the head of a great cross, of which the Pole Star is the foot and Vega and Deneb the two arms. Far brighter and bigger than our sun, Altair is rushing toward us at the rate of eight hundred million miles a year.

THE LETTER WRITTEN IN THE HEAVENS

About as far east of the meridian as Hercules is west is the constellation

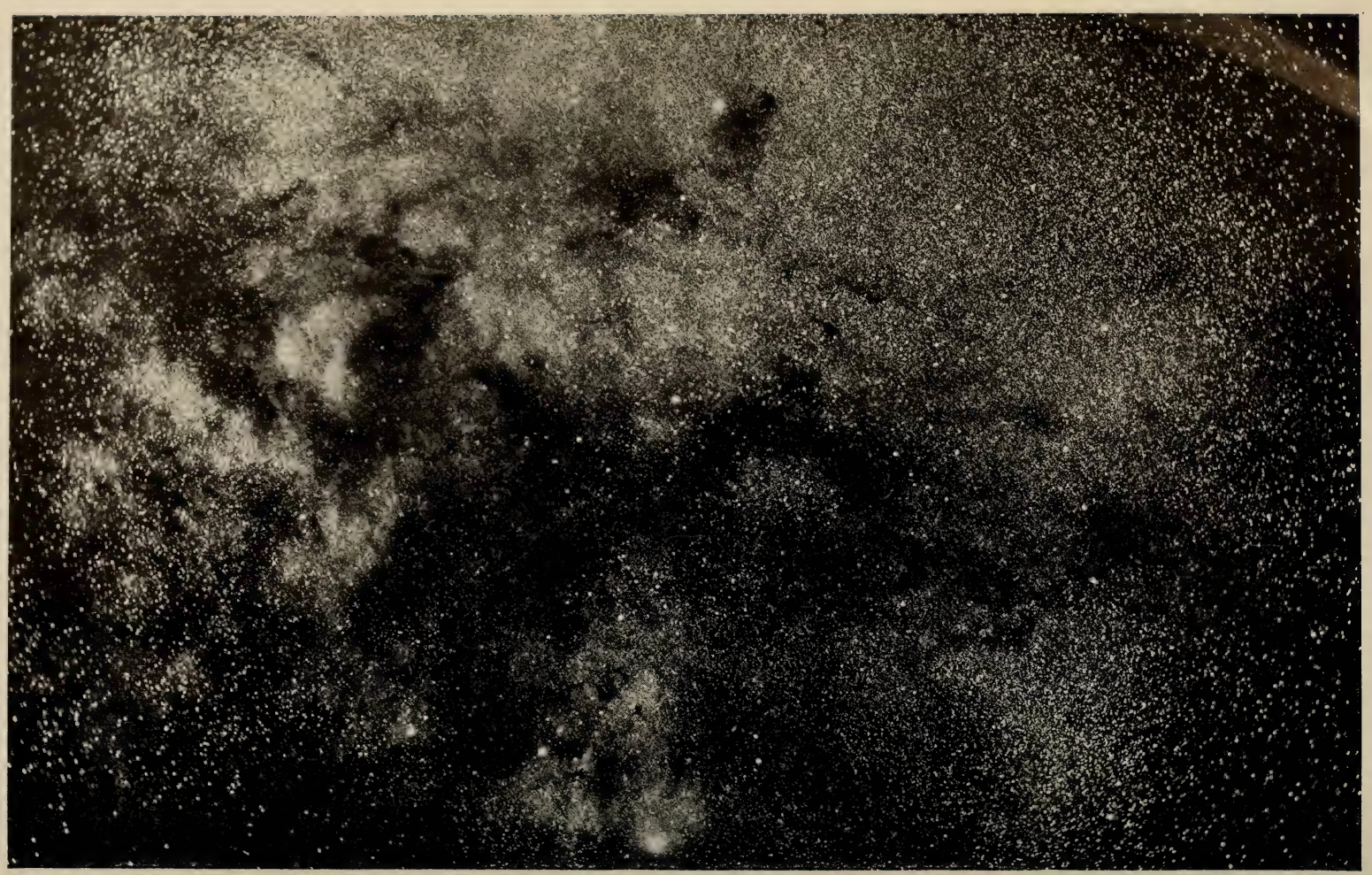
THE RING NEBULA IN LYRA, TAKEN WITH THE 60-INCH MOUNT WILSON TELESCOPE

The power of the big telescopes is strikingly shown by this picture. With the naked eye one cannot see this nebula, which is in the neighborhood of Vega (see chart on page 170). A cube, whose sides equal the distance across this nebula, would occupy a space large enough to provide room for hundreds of millions of solar systems like ours.

Cygnus, the Swan, with Deneb as its principal star. Deneb is so far away that the light rays entering our eyes from it this year left it during the reign of Queen Elizabeth. It is driving through space toward us at the rate of nearly two thousand miles a minute, spectroscopic advices say.

Eastward from the Pole—about as far from Polaris as the latter is above the northern horizon—is Cassiopeia, the Woman in the Chair. The major stars of this constellation form a letter "W." The star at the middle of the third stroke is a double, its two members revolving around a common center of gravity in a period of about two hundred years. If either of them has a family of planets, their system of day and night, as well as their seasons, must be powerfully complicated.

Well down toward the eastern horizon is the constellation Andromeda, the Chained Woman. It contains no first-magnitude stars, but has a line of stars of the second magnitude extending from the northeast to the southwest, by which it can be located. About fifteen degrees



Photograph from Yerkes Observatory

VERITABLE CLOUDS OF STARS

Not a single star in this whole picture is visible to the naked eye; yet every tiny dot is the image of a world that wrote its "image and superscription" on the photographic plate (see page 169).

directly south of the brightest star of the group is a little patch of light that can barely be seen. Whether this is a nebula, or whether another universe so immeasurably distant that its light is only a haze, has not been determined. The spectroscope seems to translate its light message as saying that it is composed of solid or liquid material surrounded by cooler gases (see picture, page 172).

Down on the northeastern horizon is the constellation Perseus, the Champion. Its brightest star is the center of a twinkling field regarded by many as the finest spectacle in the heavens when viewed through field-glasses. Its second star has been called Algol, the Demon. It varies in magnitude, losing two-thirds of its light between its brightest moments and its darkest, which follow one another every sixty-odd hours.

One might pass by Pegasus, the Winged Horse, with its famous square, in the southeastern heavens; Delphinus, the Dolphin, with its closely grouped stars, lying between Pegasus and Aquila; but away down on the southern horizon, on the very meridian, is a constellation, Sagittarius, the Archer, which rivets the beholder's attention. It lies in a region full of star-clusters and nebulæ of great beauty.

With the exception of a few minor constellations, this completes the list of the principal people of the sky visible at the hour named. But those who will take the trouble to watch as the months go by will see many others of rare beauty and striking appearance.

Aldebaran, a star that is well past middle age, as disclosed by its color, and yet driving toward us at the heart-breaking speed of two thousand miles a minute; Capella, so distant that our sun could barely be seen by us if as remote, but so bright that it outshines our sun as a candle outshines a fire-fly; Rigel, so hot that it would roast us alive if it were to come as close to us as the sun; Betelguese, Sirius, Procyon, Castor and Pollux, Regulus, Spica and Fomalhaut—all these are in the heavens of the daytime in late August and therefore not visible at night.

Photograph from Yerkes Observatory

A RIFT IN THE SKY

This picture shows how thickly the constellation of the Swan is peopled with stars. But why the apparent abyss in the center? Astronomers are seeking the answer.

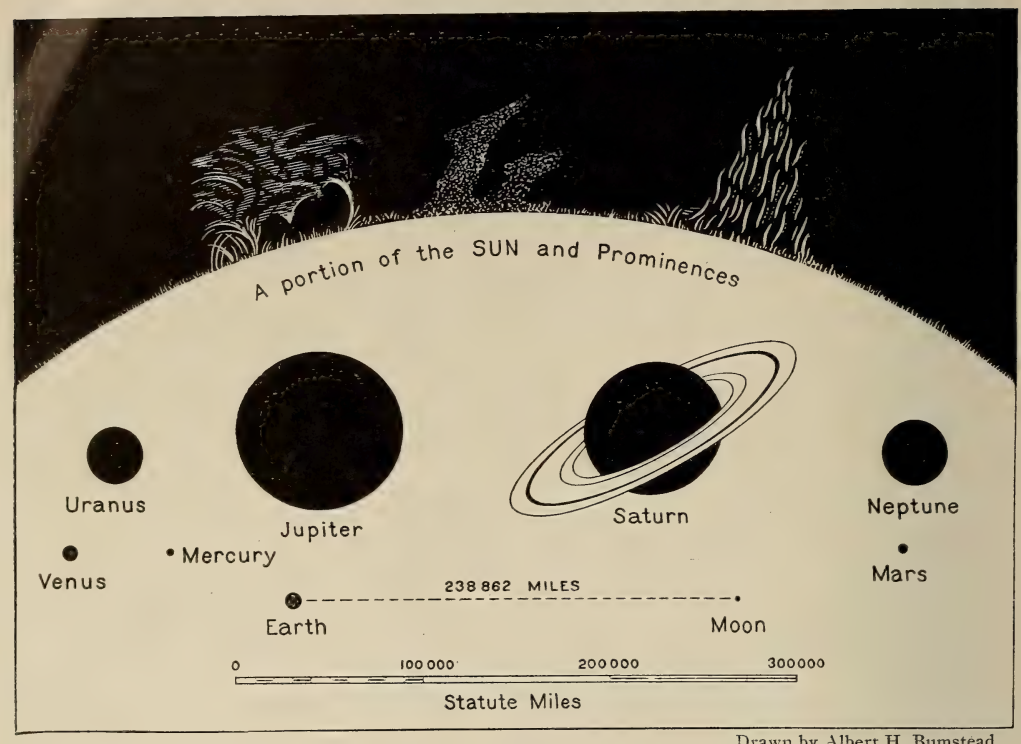
But next March they will be in their glory in the night sky, vying in beauty with the Milky Way. To know them is to add new joy to a walk in the open air on a clear winter's night.

One fain would pass on to ten thousand others of the hosts of heaven and to the wonderful stories they can tell The variable stars, like Algol, in which the brighter member of a double star is eclipsed by a darker one at regular periods, are hard to pass by.

THE "SPEED MERCHANTS" OF THE HEAVENS

So, also, are the "runaway stars" that are speeding through space at gaits that astound the astronomer. In the southern heavens is a runaway called "243 in the fifth hour of right ascension, in the Cordoba Zone Catalogue." It is traveling 170 miles a second—eight times as fast as the average star. No. 1830, Groombridge, in the Great Bear, has a velocity of perhaps 200 miles a second. At that rate it could fly around the earth in a shade more than two minutes.

Either the universe is vastly more ex-



Drawn by Albert H. Bumstead

CHART SHOWING THE RELATIVE SIZE OF THE SUN, MOON, AND MAJOR PLANETS

The stupendous size of the sun in comparison with the several members of its planetary family is emphasized by the distance of the moon from the earth as here plotted on the face of the sun. The differences in their sizes play peculiar tricks of gravity. A hundred pounds would weigh 2,764 pounds on the sun, 252 pounds on Jupiter, 36 pounds on Mars, and 16 pounds on the moon. Spots on the face of the sun are often six times the diameter of the earth, and prominences frequently reach so far into space that they would completely envelop our moon if they started from the earth (see also page 166).

tensive than the most advanced astronomer dares think or else these stars will run clear through it and out into God only knows where, unless they shall sooner pass close enough to some bigger star that can tame them.

THE MILKY WAY

Called the Silver River of Heaven by the Japanese, pronounced by the ancient mythologists the dust stirred up by Perseus as he hastened to the rescue of Andromeda, the Milky Way sweeps in a vast circle around the celestial sphere. Herschel said it might be likened to a great grindstone. It is made up of millions of small stars that cannot be separated without optical aid.

This great star stream, coursing its way around the heavens, in a sweep that may require as much as two hundred million years for its circuit, seems to have captured the vast majority of the folk of the universe, and is flowing in unending procession onward and onward. Here it branches and flows around an island in space; there it is crossed by a bridge of blackness; at another place it is narrow, as though passing through a gorge; and elsewhere it widens out as though flowing through an alluvial valley.

Composed of great clusters of multitudinous suns, many of the individual members vastly larger than our own, one who looks upon the Milky Way can feel, with Buchanan Read, that the stars that are faintest to us may to diviner vision be the noblest of them all.

Nor is it easy to neglect those wonderful objects of the sky, the nebulæ, those

wonderful aggregations of gas or microscopic dust. Look on a winter's night at Orion. Between Betelguese and Rigel is his belt, and suspended from this belt his sword. The central star of this sword appears to the naked eye as merely a fuzzy little fellow that might be passed over without thought.

THE INUTTERABLE GREATNESS OF THE NEBULÆ

But train a big telescope on it and instead you see the most magnificent nebula in the heavens. Its diameter is thought to be twenty million times as great as that of our sun. Even if its density were as much more attenuated than air, as air is lighter than lead, it would still be, according to figures suggested by Professor Moulton, as much heavier than the sun as the great Pyramid of Cheops is heavier than one-tenth of an avoirdupois grain (see page 175).

Of such attenuated material as this are worlds called into being under laws made in the beginning. How many worlds have met, and are meeting, the description, "the earth was without form and void"! And from such new-born worlds, with their blazing white light, of which Rigel is a type, down through the bluish white of which Sirius is a representative, and then through the yellow, like our sun and Procyon and Arcturus, to the red ones, like 19 Piscum, and again to those that are black and eclipse their brighter neighbors in the variable stars, we run the gamut of star life, with here mewling infancy, there gay youth, elsewhere sturdy manhood and ripe age. And in the end come dead suns, derelicts in the ocean of space.

When the sweet singer of Israel sang that "the heavens declare the glory of God and the firmament sheweth His handiwork," he had never seen more than five thousand stars. With the latest Mount Wilson reflector three hundred million will write themselves upon the photographic plate.

IN DAVID'S TIME AND OURS

What in David's time and with the naked eye were only gems to render a sky more beautiful and wondrous for mundane dwellers, are revealed, through such powerful instruments, as worlds and systems, immeasurably distant the one from the other, but each and all actuated by laws so all-pervading that they apply alike to infinitesimal and to infinite, so enduring that they survive all wreck and change, so powerful that all things created are controlled by them, and yet simple enough that with patient endeavor the astronomer and the chemist and the physicist are learning their principles one by one.

BETWEEN MASSACRES IN VAN

By Maynard Owen Williams

THE scene is Van, historic capital of Armenia, whose antiquity is proven by the inscriptions of the conquering kings of many tribes carved in Castle Rock.

Tragedy is depicted in each ruined home, but the background is one of striking charm. To the left, or southwest, there lies the majestic line of snow mountains which separate Armenia from the Tigris Valley.

Before us are the peculiarly lovely waters of the lake of Van, with Nimrud's cratered peak showing hazily forty miles away. A little to the north, one sees the graceful cone of Sipan, where the ark of Noah first sought rest, only to have this hoary-headed mountain resign its fame to mightier Ararat, still farther north.

To the right—a ribbon of dark brown across the snow expanse—there runs the road of the retreats, the way that leads to the Valley of the Shadow of Death.

My part has been building barracks out of fire-scarred mud shells, where once choice carpets and silk hangings gave a touch of Oriental luxury to a city of beautiful homes and green gardens, and providing work through which proud women could earn bread.

PART OF THE BOYISH COMPANY OF VOLUNTEERS WHO TRAMPED FROM ARTEMID TO VAN: ARMENIA

Through winter snows they came to petition the Armenian Governor for real guns with which to defend their homes. The oldest of these boys was twelve. They were self-trained and set out on their six-mile tramp without the permission or knowledge of their guardians in Artemid.

In one huge house carpenters are fashioning windows and doors to make more habitable the hovels where the people herd. And tons of matted wool are there being cleaned, carded, and spun for clothing to protect weakened womanhood from piercing cold.

American charity is at work where misery is anesthetised by hope for future peace, where barefoot children, trudging through the crunching snow, smile as they swing small blackened pails in which they hope to get some watery soup to soften the black bread on which their lives depend.

The Governor and I are closest friends. When he was young he ran an elevator in Boston and learned his English from

the kindly people whom he served. Now his is the task of husbanding this pitiful group of Armenians until victory shall come to the Allied arms and liberty to the land he loves.

As we returned one day from our tasks to the modest mud house which was the humble home of government, we were confronted by a grotesque group of tiny lads whose ages ran from eight to twelve.

The Governor saluted the small, but dignified, commander gravely and asked:

"What can the Governor do for these loyal citizens?"

"We have come to exchange these wooden guns which we have made for real guns. We want to protect our country."

"We have great need for all our guns, my men," said the Governor. "We only issue rifles to those who can drill."

TWO PRIVATES IN THE ARTEMID ARMY OF SMALL BOYS

The reply was immediate:

"We can drill, sir!"

The busy man's eyes twinkled a little at this delay, but he said:

"Let me see what you can do."

The 12-year-old leader gave a sharp command, and 28 wooden guns, carved from light boards, came to the snowy street with a thud.

Up they came again to "present arms," back to "right shoulder arms," and then to "charge bayonets." Not a smile showed on the youthful faces.

Then the untanned skin moccasins shuffled back and forth in fours and around to "company front"—just such play at soldiering as makes us smile proudly, but with a little catch at the throat, whenever we see this youthful imitation of a world at war.

But most of *these* small lads had a murdered father or a suicide mother, hounded to her death by Kurdish fiends, as his background.

The Governor was deeply moved.

"Where are your homes?" he asked, expecting that they came from some near section of the city.

"We come from Artemid, sir!" was the challenging reply, mentioning a lake-side village six miles distant on the road to the Turkish lines.

The day before there had been a heavy snow and the afternoon shadows were already lengthening. Even a strong man

THE COMMANDANT OF VAN, SON OF ONE OF ARMENIA'S POETS, PRESENTING A WOODEN SWORD TO THE CAPTAIN OF THE GROUP FROM ARTEMID

would have difficulty in reaching Artemid that night.

So Governor Hambartsoumiantz called in the youthful commandant and myself to a council, which resulted in the issue of an army ration of black bread, tea, and sugar to the boys, while a room was provided for them in the headquarters of the city troops. Still the lads said they would not return to their homes unless they were given guns.

Relief work is not a matter of stomachs alone, but of morale. So in the morning my head carpenter set to work on the choicest board we could find, and while he was fashioning it into a blade with all the curves of Saladin's sword, the boyish company inspected the varied industries which American relief had established, and each received a pair of heavy woolen socks.

Then the lads drew up at attention on the flat mud roof of our premises.

There the young commandant, son of one of Armenia's famous poets, gracefully presented the 12-year-old captain with a saber, whose wooden fabric could not conceal the lines which were smilingly, yet tearfully, worked into it by the master carpenter, who entered with all his heart into this simple commission of love.

"This time we can only give your leader a sword," said the Governor, who had left an important conference to wish these lads farewell.

"But I wish you to keep up your discipline and training, for the time may come when we shall need your aid. Hold your command in readiness, Captain, for your country may call on you."

"We shall be ready, sir!" said the proud possessor of the new sword.

Then he turned to his motley gang:

"Right shoulder arms! Column right, march!" And the volunteer army of Artemid started proudly on their long tramp to the village through which, a month later, the Turkish hordes passed on their way to massacre in Van.

The thrill you get as the band goes by!

– *Or hearing the greatest bands on the Victrola*

How often do you get the chance to hear the mighty brass band of Sousa as it goes swinging past? Once or twice in a lifetime, perhaps. But on the Victrola you can hear it any day—with the same brave inspiration as if the big band was actually marching by.

Not only Sousa's Band, but Pryor's also. And Conway's and Vessella's and the United States Marine Band, the Black Diamonds Band of London, Band of H. M. Coldstream Guards, Garde Republicaine Band of France, Banda de Alabarderos of Madrid—all the best band music of the world.

These famous organizations make Victor Records because their leaders consider them *the best records in the world.*

Victors and Victrolas in great variety from $12 to $950.
There are Victor dealers everywhere and they will gladly play for you any band music you wish to hear.

Important Notice. Victor Records and Victor Machines are scientifically coordinated and synchronized in the processes of manufacture, and their use, one with the other, is absolutely essential to a perfect reproduction.

Victor Talking Machine Co., Camden, N. J.

SOUSA
and his Band

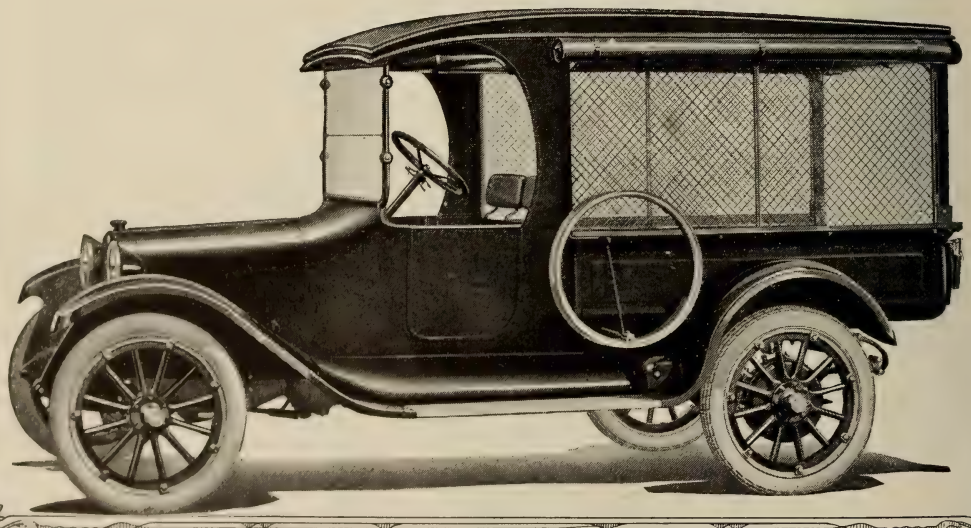
DODGE BROTHERS
BUSINESS CAR

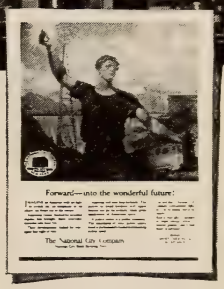
Dodge Brothers Business Car continues to prove, in actual use, that it is an economical car

It is economical in its current cost-per-mile and over a long period of use

The haulage cost is unusually low

DODGE BROTHERS, DETROIT





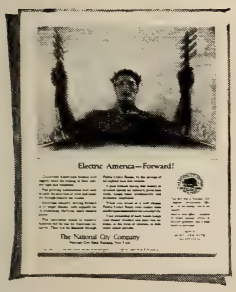
These are Bond Days

SOON after the signing of the Armistice, we published a series of looking forward advertisements — reproduced on this page.

As a mark of our own confidence we have gone forward in the development of our organization to meet the growing needs of the investors of this country and Canada.

The National City Company now has correspondent offices in more than 50 leading cities. 10,000 miles of private wires put every investor, no matter where he may be, in close touch with the investment center of the country. A telephone call brings one of our carefully schooled representatives to explain and discuss with you Government, Municipal, Public Utility, and Railroad bonds, Short Term Notes and Acceptances.

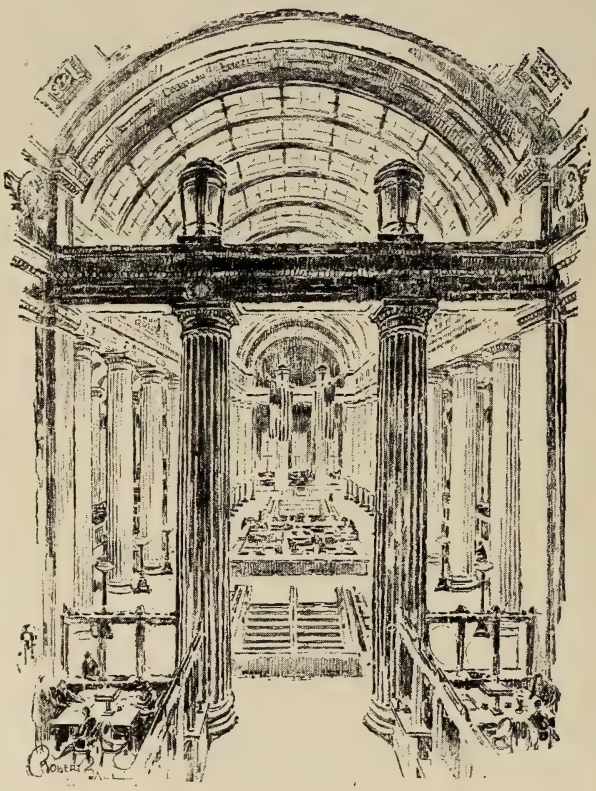
The bonds we offer and sell are bonds we own. Before buying we subject each issue to the scrutiny of nationally recognized experts. Here is a nation-wide service at the elbow of everyone who wishes to invest in securities of the highest character.



The National City Company

National City Bank Building, New York

TRANSACT ALL FINANCIAL BUSINESS HERE



The CONTINENTAL *and* COMMERCIAL BANKS

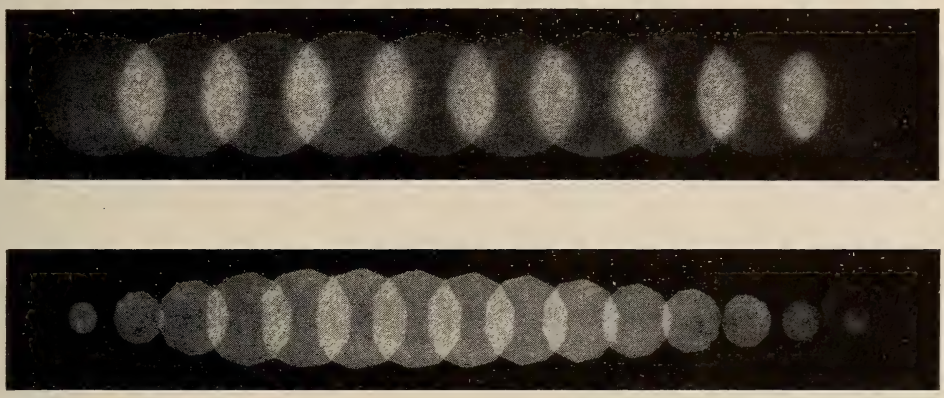
CHICAGO

COMMERCIAL BANKING, FOREIGN AND DOMESTIC. SAVINGS. PERSONAL TRUSTS. CORPORATE TRUSTS AND CORPORATE AGENCIES. SAFE DEPOSIT. SAFEKEEPING FOREIGN AND DOMESTIC SECURITIES. INVESTMENT SECURITIES. FINANCING GOVERNMENT ISSUES. FINANCING INDUSTRIES, MUNICIPALITIES, RAILROADS, UTILITIES.

Continental *and* Commercial National Bank *of Chicago*
Continental *and* Commercial Trust and Savings Bank
CHICAGO, U. S. A.

GRAFLEX

The camera that uses all the light there is.



The illustrations above are reproduced from actual photographs, made at the Kodak Research Laboratory, of the light projected by a lens through a Graflex Focal Plane Shutter, and a between-lens shutter. The upper illustration shows that with the Graflex Focal Plane Shutter there is no diminishing of the volume of light due to the opening and closing of the shutter. The lens works at its full efficiency during the entire period of exposure. The lower cut shows how a between-lens shutter, when making fast exposures, uses up most of the exposure period in opening and closing, allowing the lens to work at its full efficiency during but a small fraction of the exposure.

This is why the Graflex Focal Plane Shutter allows more light to reach the plate or film during the interval of exposure than any other shutter.

Because of its Focal Plane Shutter, its high speed lenses and the mirror system that shows the full image, right side up, at the very instant of exposure, the Graflex is the camera that does the difficult things in photography and does them well.

The Graflex catalogue—free at your dealer's or by mail—gives all the details.

FOLMER & SCHWING DEPARTMENT

EASTMAN KODAK CO. ROCHESTER, N. Y.

September, a glory of autumnal color, is perfect in Canada for golfing and automobiling. Make Chateau Frontenac, Quebec, your objective point.

Chateau Frontenac

"Castle of Comfort"

QUEBEC
CANADA

Like a King's citadel, dominating, impressive, yet welcoming! An old world atmosphere surrounds it, as in Normandy, with a glamour of history and romance.—The Plains of Abraham —The Shrine of Ste. Anne de Beaupre—Montmorency Falls, are near by.

Fine hard roads, through the White and Laurentian Mountains, and from Albany, make Quebec a magnet for motorists. Cool, bracing air insures perfect comfort on the hottest midsummer days.

Chateau Frontenac is one of the most interesting and notable hotels of the Continent. Companionable, cosmopolitan people—a New York and Paris cuisine, music, dancing, and the perfect appointments and service of a Canadian Pacific Hotel.

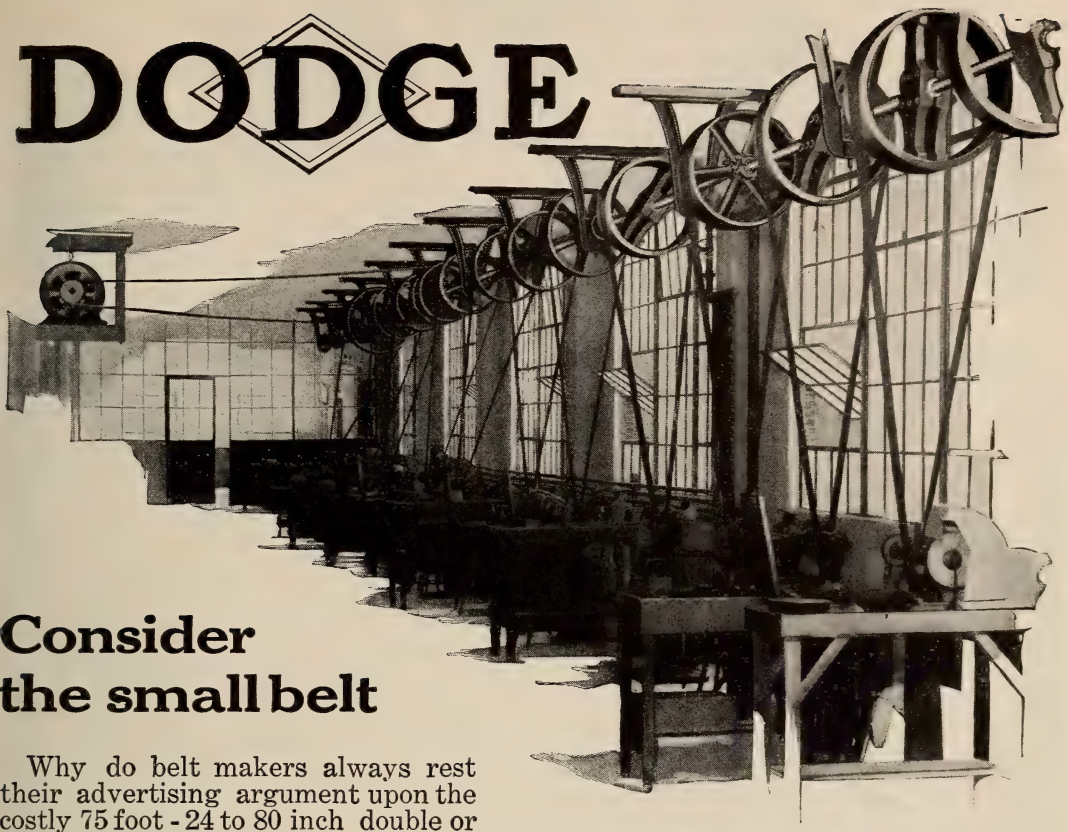
Plan to stop a day—you will stay a week.

Make reservations in advance.
For particulars address

CANADIAN PACIFIC HOTELS

1231 Broadway, N. Y. 140 S. Clark St., Chicago
or Montreal, Canada

DODGE



Consider the small belt

Why do belt makers always rest their advertising argument upon the costly 75 foot - 24 to 80 inch double or three-ply belt? Why not consider occasionally the millions of feet of 4, 6 and 8 inch single belt that so faithfully serves owner, superintendent and machine operator in practically every industrial plant in America?

The transmission of power from the lineshaft to the machine constitutes the greatest source of profit or loss in almost any plant.

Various solutions have been sought. Some have proved spectacular but costly and unreliable. The dependable method from the standpoint of economy and reliability remains as always --- belt driven from line or countershaft to the individual machine.

When Dodge equipment is specified, experiment and delay of production are eliminated. Pulleys, hangers, bearings, clutches,, couplings "Built by Dodge" have a distinct relation to each other and to the work they are to perform.

Your small belts serve you well. Be fair to them. Expect the best results from them only when they are used with equipment designed to act as a unit in effective, economical power transmission. Such equipment can be found only in the Dodge line, since only the Dodge line contains everything for the mechanical transmission of power.

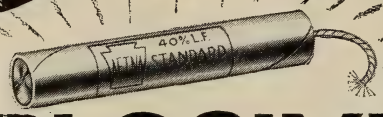
There's a Dodge dealer in your locality. He is competent to advise you in the matter of group driving. Place your order through him if possible; we prefer it.

Dodge Sales & Engineering Company

Distributor of the products of the Dodge Mfg. Company and the Dodge Steel Pulley Corporation

General Offices: Mishawaka, Ind. **Works: Mishawaka, Ind. and Oneida, N. Y.**

AETNA



EXPLOSIVES

A War-Time Giant for Peace-Time Needs

DURING the days of reconstruction, Aetna Explosives will help America almost as much as during the war.

Our 7 large plants, 14 branch offices, and 110 distributing centers are devoting their experience, skill, and energy to the one purpose of giving each industry the aid of an explosive best suited to its needs.

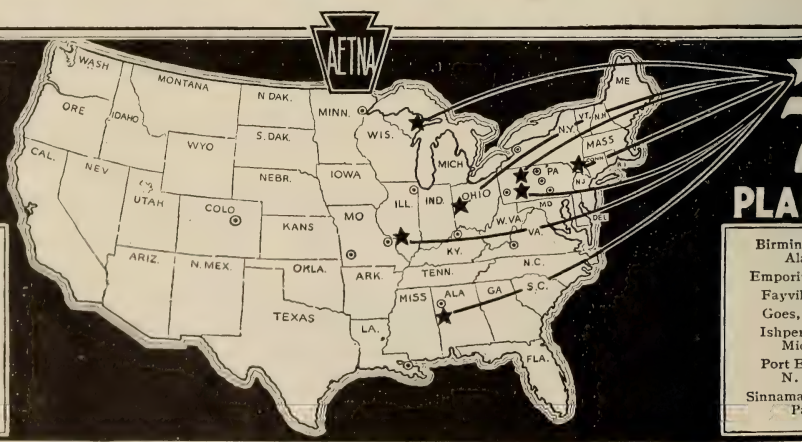
Aetna Explosives are made in special grades for coal and ore mining, quarrying, engineering, stump, ditch, and boulder blasting and for all other work where an explosive action is required.

They are manufactured from scientific formulas, under the direction of trained chemists, and are subjected to the most exacting laboratory and practical tests to establish their high efficiency and safety.

If your dealer does not sell Aetna Explosives, write us and we will see that you are promptly served. Write for booklet on subject in which you are interested, or ask our Engineering Service Department for advice. No obligation.

AETNA EXPLOSIVES COMPANY, Inc.
165 BROADWAY, NEW YORK

It Does the Work!



14 BRANCHES

Birmingham, Ala.
Buffalo, N. Y.
Chicago, Ill.
Denver, Colo.
Duluth, Minn.
Joplin, Mo.
Louisville, Ky.
New Orleans, La.
Norristown, Pa.
Pittsburgh, Pa.
Pottsville, Pa.
Roanoke, Va.
St. Louis, Mo.
Wilkes-Barre, Pa.

7 PLANTS

Birmingham, Ala.
Emporium, Pa.
Fayville, Ill.
Goes, Ohio
Ishpeming, Mich.
Port Ewen, N. Y.
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Beautiful Teeth

Mean Teeth Without Film

All Statements Approved by High Dental Authorities

It is film on your teeth — that slimy film — which causes most tooth troubles.

You fail to end it by old methods of tooth cleaning. So teeth discolor and decay.

That film clings to teeth. It enters crevices, hardens and stays. It absorbs stains, so the teeth discolor. It is the basis of tartar. It holds food substance which ferments and forms acid. It holds the acid in contact with the teeth to cause decay.

Millions of germs breed in it. They, with tartar, are the chief cause of pyorrhea. So the great problem of teeth cleaning is to daily combat that film.

A way has been found to do that. Authorities have proved this by convincing clinical tests. Now that way is embodied in a dentifrice called Pepsodent, and we urge you to see what it does.

Watch It 10 Days

Analysis shows that this film is albuminous. Pepsodent is based on pepsin, the digestant of albumin. The object is to dissolve the film, then to constantly combat it.

Pepsin alone can't do that. It must be activated, and the usual method is an acid, harmful to the teeth. That made activated pepsin impossible on teeth.

But science has discovered a harmless activating method. Patents have been granted by five governments already. That method is now used in Pepsodent to solve this great film problem.

Let it prove itself. Send the coupon for a 10-Day Tube. Use like any tooth paste. Note how clean the teeth feel after using. Mark the absence of the slimy film. See how teeth whiten as the fixed film disappears.

Your present methods are not ending film. See what this new-day method does. It will be a revelation.

PAT. OFF

Pepsodent

REG. U. S.

The New-Day Dentifrice

A Scientific Product—Sold by Druggists Everywhere

198

Ten-Day Tube Free

THE PEPSODENT COMPANY
Dept. 588, 1104 S. Wabash Ave., Chicago, Ill.

Mail Ten-Day Tube of Pepsodent to

Name .....

Address .....

What a Check Tells

The customers of the National Bank of Commerce in New York are among the leaders of industry.

Our credit is extended to concerns ably and successfully managed, whose financial history is clean.

A check drawn on the National Bank of Commerce in New York tells of leadership, sound policies, financial integrity and success.

NATIONAL BANK OF COMMERCE IN NEW YORK

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SAVO AIR MOISTENER

FILL WITH WATER, HANG ON BACK OF ANY RADIATOR OUT OF SIGHT

Others for Hot Air Registers

Saves Health, Furniture, Pianos, Fuel, Paintings, Plants, etc. Made to fit Radiators perfectly. The most efficient humidifier made. **Write for FREE Booklet.**

SAVO Manufacturing Company

Dept. G, 39 So. La Salle Street, Chicago, Illinois

SAVO FLOWER AND PLANT BOX

Self-Watering and Sub-Irrigating **For Windows, Porches, Sun Parlors, Etc.**

The All Year Round Garden

Leak-proof and rust-proof. You can move Savo Steel Boxes indoors or out and have beautiful Flowers and Plants the year around. Write for Free Catalog.

SAVO MFG. CO., Dept. "D," 39 So. La Salle St., Chicago, Illinois

The Pro-phy-lac-tic Tooth Brush

Ask your druggist for "the brush in the yellow box"—he knows

A Wayside Chat in Cornwall, England

SCENES FROM EVERY LAND

FOURTH SERIES

200 Full-page Illustrations, 24 Pages in Matchless Natural Colors
20,000 Words of Descriptive Text

By GILBERT GROSVENOR, Editor The National Geographic Magazine

EXCELLING in beauty and in compelling interest its three predecessors, the fourth volume of the National Geographic Society's "Scenes" series may now be secured from the Washington headquarters of the Society. The first two series of "Scenes from Every Land" have been entirely exhausted and cannot be had at any price, while only a few copies remain of the third. To insure your copy of the NEW series you should order at once.

"Scenes from Every Land" is like no other book in the world. It occupies a unique place in the literature of the universal language—the language of pictures, through which man becomes acquainted with his fellow-man on the other side of the world. The Editor has selected 200 photographic gems from the Society's great treasure-house of pictures, which is being constantly enriched by contributions from explorers, scientists, world-travelers, artists, and lovers of nature in every quarter of the globe. These pictures tell their own story of strange peoples, odd customs, the history of ancient civilizations written in the massive ruins of their temples, palaces, and amphitheaters, the master achievements of modern engineers—the builders of canals, bridges, and cities—and the inspiring manifestations of the handiwork of Nature, wrought in mist-crowned mountains, shimmering waterfalls, and landscapes of magic beauty.

The Society is able to publish this volume, which includes 24 pages in full colors, at a nominal price, owing to the fact that most of the illustrations have appeared previously in THE NATIONAL GEOGRAPHIC MAGAZINE and the expense of engraving both the color and the black-and-white plates has already been borne. No picture in the Fourth Series, however, is to be found in any of the earlier volumes.

CUT ON THIS LINE

DEPT. H, NATIONAL GEOGRAPHIC SOCIETY,
16th and M Streets, Washington, D. C. 1919.

Please send_____copies of the **Fourth Series "Scenes from Every Land,"** bound in_____

for which I enclose herewith_____dollars.

If several copies are desired, write names and addresses and send with your card.

Bound in Royal Buckram, postpaid in U. S., $2.00
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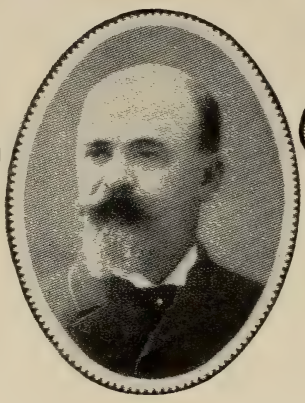
BEEMAN'S

ORIGINAL PEPSIN



CHEWING GUM

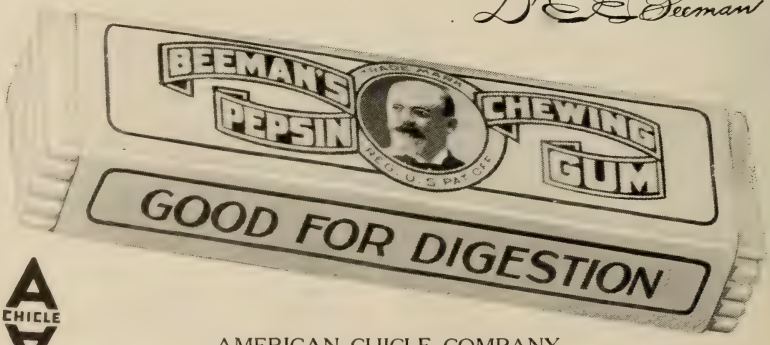
Irritability Decreases Efficiency

WHEN a man is irritable and annoyed by little things his efficiency is greatly diminished, because under these conditions he cannot do his best work, nor can he get the best work out of those about him.

Generally, indigestion in some slight form is the "makings" of a grouch.

In most cases of this sort the routine use after meals of my Original Pepsin Chewing Gum will relieve the indigestion and restore the temper of the individual to a calm, normal condition.

D. E. Beeman



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AMERICAN CHICLE COMPANY

New York Cleveland Chicago Kansas City San Francisco

CAMEL
Don't look for premiums or coupons, as the cost of the tobaccos blended in CAMEL Cigarettes prohibits the use of them.
MANUFACTURED BY
R. J. REYNOLDS TOBACCO CO.
WINSTON-SALEM, N. C. U.S.A.

Cigarettes made to meet your taste!

18c a package

CAMELS are offered you as a cigarette entirely out of the ordinary—a flavor and smoothness never before attained. To best realize their quality—*compare Camels with any cigarette in the world at any price!*

Camels flavor is so refreshing, so enticing, it will win you at once—it is so new and unusual. That's what Camels expert blend of choice Turkish and choice Domestic tobacco gives you! You'll prefer this blend to either kind of tobacco smoked straight!

As you smoke Camels, you'll note the absence of any unpleasant cigaretty odor. And, you'll be delighted to discover that you can smoke Camels liberally *without tiring your taste!*

Take Camels at any angle—they surely supply cigarette contentment beyond anything you ever experienced. *They're a cigarette revelation!* You do not miss coupons, premiums or gifts. *You'll prefer Camels quality!*

Camels are sold everywhere in scientifically sealed packages of 20 cigarettes or ten packages (200 cigarettes) in a glassine-paper-covered carton. We strongly recommend this carton for the home or office supply or when you travel.

R. J. Reynolds Tobacco Co., Winston-Salem, N. C.

Camel
CIGARETTES

GOLFLEX

For
Travel, Sport,
or Town Wear

nothing is at once so smart and so comfortable as a GOLFLEX suit or dress.

Distinctively man-tailored from worsted jersey, whose knitted weave gives needed elasticity while retaining the original thoroughbred lines.

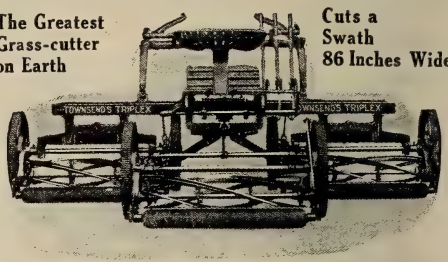
See them at your favorite store, or write direct to

WILKIN & ADLER
11 East 26th Street
New York

TOWNSEND'S TRIPLEX

The Greatest Grass-cutter on Earth

Cuts a Swath 86 Inches Wide



Floats Over the Uneven Ground as a Ship Rides the Waves

One mower may be climbing a knoll, the second skimming a level, while the third pares a hollow. Drawn by one horse and operated by one man, the TRIPLEX will mow more lawn in a day than the best motor mower ever made; cut it better and at a fraction of the cost.

Drawn by one horse and operated by one man, it will mow more lawn in a day than any three ordinary horse-drawn mowers with three horses and three men.

Does not smash the grass to earth and plaster it in the mud in springtime, neither does it crush the life out of the grass between hot rollers and hard, hot ground in summer, as does the motor mower.

The public is warned not to purchase mowers infringing the Townsend Patent, No. 1,209,519, December 19th, 1916.

Write for catalog illustrating all types of Lawn Mowers.

S. P. TOWNSEND & CO.
27 Central Avenue Orange, New Jersey

DUES

Annual membership in U. S., $2.00; annual membership abroad, $3.00; Canada, $2.50; life membership, $50. Please make remittances payable to National Geographic Society, and if at a distance remit by New York draft, postal or express order.

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IN THE

NATIONAL GEOGRAPHIC SOCIETY

The Membership Fee Includes Subscription to the National Geographic Magazine

PLEASE DETACH AND FILL IN BLANK BELOW AND SEND TO THE SECRETARY

_____ *191*

To the Secretary, National Geographic Society,
Sixteenth and M Streets Northwest, Washington, D. C.:

I nominate _____

Address _____

_____

for membership in the Society

_____

_____
Name and Address of Nominating Member

Not Filled with Air
YOU CAN'T SINK WITH A
KAPO
LIFE-SAVING
WING, WATER-VEST, OCEAN WAISTCOAT, OR CANOE AND MOTOR-BOAT PILLOW
Because
they are filled with Kapo Ceiba silk, a few ounces of which, as used in our life-saving products, will support the heaviest person in the water for three months.
For Men, Women, and Children
Go to your department or sporting-goods store and see these wonderful life-savers, or send to us for a complete illustrated catalog.
KAPO MFG. CO. 16 HARCOURT ST. BOSTON, MASS.

DENBY
MOTOR TRUCKS

REPUTATION is merely the accumulated record of service.

Denby Motor Truck Company
Detroit **Michigan**

JUDD & DETWEILER, INC.
MASTER PRINTERS
ECKINGTON PLACE AND FLORIDA AVE.
WASHINGTON, D. C.

Whether you are considering a simple memorial or one highly elaborate, your ideas can be sympathetically embodied in a monument which will worthily reflect your taste and individuality.
Write for Booklet 3.
HARRISON GRANITE COMPANY
200 Fifth Avenue **New York**
Offices in Principal Cities Works: Barre, Vt.

A Garden Full of Darwin Tulips for $1.50

In anticipation of again placing before our customers a collection of Darwin Tulips we have had a sufficient quantity grown so that we can offer

50 Giant Darwin Tulip Bulbs, Finest Mixed, for $1.50
selected from fifteen named varieties

Few spring flowering plants rival the Darwin Tulip for brilliance of bloom. Borne on strong stems often exceeding three feet. They are a wonderful addition to the flower garden.

Plant any time before the ground becomes frozen, and they will bloom from the middle of May to Decoration Day.

Mail this advertisement with check, money order, cash, or stamps, and secure this exceptional collection, sent prepaid to any point in the U. S. east of the Mississippi. **For points West and Canada, kindly add 25c. to cover cost of delivery.**

Our 1919 Fall Bulb Catalogue, containing complete list of bulbs for Autumn planting, sent on request.

Stumpp & Walter Co
30 and 32 Barclay Street **New York**

Copyright 1919
by R. J. Reynolds
Tobacco Co.

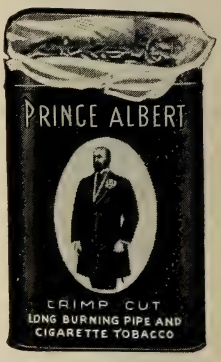
SAY, what a trick you'll turn for your tongue and taste and temper when you finally get down to bed-rocksmokes and let some of that topjoy Prince Albert float into your system! Just will put the quiz into your thinktank as to how much pipe or cigarette-rolling fun you've gone shy on—and, you'll work in a lot of double headers for quite a spell to get all-square!

You can't hit a happier job than to stock a supply of Prince Albert, jam that joy'us jimmy pipe chuck-full and blaze away! Why, it's like falling into feathers when you've been batting-it-out-on-a-board!

Prince Albert just can't help doing you a clever turn because it won't bite your tongue at any stage! Bite and parch are cut out by our patented process.

You don't need a percentage table to figure out what Prince Albert's quality and flavor and fragrance will do for your happiness every time the clock ticks! You'll get the answer quick!

R. J. REYNOLDS TOBACCO CO., Winston-Salem, N. C.



Prince Albert is sold in toppy red bags, tidy red tins, handsome pound and half pound tin humidors, and, in that classy, practical pound crystal glass humidor with sponge-moistener top that keeps the tobacco in such perfect condition!

PRINCE ALBERT

the national joy smoke

On Land or Sea

In every place, position, or condition—when there is writing to do—the Sheaffer pen does it—to its last ink drop.

The Sheaffer *always writes all ways*—writes at the first touch. It can't blot, flood, skip, or ink the fingers. That's because of the special patented Sheaffer features. It is a perfect writing instrument.

And that, after all, is the character test of a pen.

Many beautiful models and mountings—for men, women—little folks, too. Sold by good dealers everywhere.

Always Writes All Ways

W. A. SHEAFFER PEN COMPANY

14C SHEAFFER BLDG., FORT MADISON, IOWA

Service Stations

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Kansas City, Gateway Station
San Francisco, Monadnock Building

Sheaffer Pens come in a variety of styles and prices, from $2.75 with clip cap and up.

The one above illustrated is No. 366 CRM mounted in 14K. gold—Price $30.00. In rolled gold, No. 36 CRM—Price $8.00. In Sterling silver No. 26 CRM—Price $7.00.

Sheaffer "Giftie" Combination Sets consisting of Sheaffer Pen mounted in Sterling silver and Sheaffer SHARP-POINT Pencil, Sterling—Price $9.50. Combination set, gold filled—Price $13.50. Solid gold—Price $61.50.

Sheaffer SHARP-POINT Pencils—good as the pen—entirely new idea—are simplified—efficient. From $1.00 to $50.00 with pocket clip.

The Sheaffer SHARP-POINT Pencil here illustrated is the Puritan style. In Sterling silver, No. BD — Price $3.00. In Gold filled, No. CD—Price $3.50. In Solid Gold, No. DD—Price $22.50

SHEAFFERS
SELF FILLING
FOUNTAIN PEN

PRESS OF JUDD & DETWEILER, INC.
WASHINGTON, D. C.

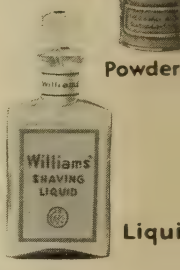
"The kind that won't dry on the face!"

FOR a good many years—depending on how old you are—you've been hearing that Williams' lather "won't dry on the face." Have you ever stopped to think just what that signifies? Of course it doesn't mean that after getting all lathered up you can stop to play with the baby for half an hour, or run to a fire. But it does mean that you can put on the rich, softening, creamy lather, strop your razor well, go all the way round at a leisurely pace, and finish off a velvety shave without having to lather the face a second time. That is the reason why a Williams' shave is both quicker and more comfortable. Get Williams' convenient Holder-Top Shaving Stick and try it tomorrow.

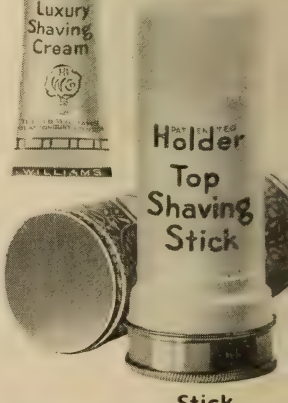
Send 20c. in stamps for trial sizes of the four forms shown here. Then decide which you prefer. Or send 6c. in stamps for any one.

THE J. B. WILLIAMS CO., *Dept. A,* Glastonbury, Conn.

After the shave or the bath, you will enjoy the comforting touch of Williams' Talc Powder. Send 4c. for a trial size of the perfume you prefer—Violet, Carnation, English Lilac or Rose.



Cream



Stick

Williams'

PATENTED Holder Top Shaving Stick

THE J.B. WILLIAMS CO. GLASTONBURY CONN

VOLUME XXXVI NUMBER THREE

THE NATIONAL GEOGRAPHIC MAGAZINE

SEPTEMBER, 1919

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ORGANIZED FOR "THE INCREASE AND DIFFUSION OF GEOGRAPHIC KNOWLEDGE"

To carry out the purpose for which it was founded thirty-one years ago, the National Geographic Society publishes this Magazine. All receipts from the publication are invested in the Magazine itself or expended directly to promote geographic knowledge and the study of geography. Articles or photographs from members of the Society, or other friends, are desired. For material that the Magazine can use, generous remuneration is made. Contributions should be accompanied by an addressed return envelope and postage, and be addressed: Editor, National Geographic Magazine, 16th and M Streets, Washington, D. C.

Important contribu ns to geographic science are constantly being made through expeditions financed by funds set aside from th ' 's income. For example, immediately after the terrific eruption of the world's largest crater, Mt. Katm .. 'laska, a National Geographic Society expedition was sent to make observations of this remarkable p ion. So important was the completion of this work considered that four expeditions have follow extraordinary scientific data resultant given to the world. In this vicinity an eighth wonder of the discovered and explored—"The Valley of Ten Thousand Smokes," a vast area of steaming, spout fiss evidently formed by nature as a huge safety-valve for erupting Katmai. By proclamation of th esiden e United States, this area has been created a National Monument. The Society organized and sup e party, which made a three-year study of Alaskan glacial fields, the most remarkable in existen cpense of over $50,000 it has sent a notable series of expeditions into Peru to investigate the traces a race. The discoveries of these expeditions form a large share of the world's knowledge of a civil. ch was waning when Pizarro first set foot in Peru. Trained geologists were sent to Mt. Pelee, L re, and Messina following the eruptions and earthquakes. The Society also had the honor of subs a substantial sum to the historic expedition of Admiral Peary, who discovered the North Pole April 6, 19 Not long ago the Society granted $20,000 to the Federal Government when the congressional appropriation to the purchase was insufficient, and the finest of the giant sequoia trees of California were thereby saved for the American people and incorporated into a National Park.

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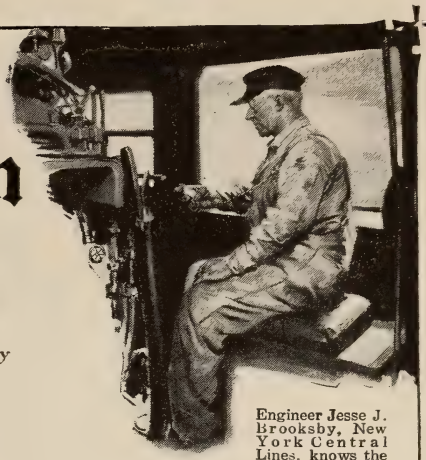
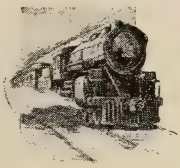
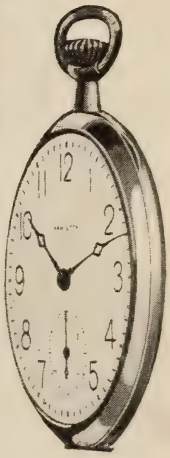
Hamilton Watch

The Watch of Railroad Accuracy





Engineer Jesse J. Brooksby, New York Central Lines, knows the value of an accurate timekeeper in keeping on schedule. For ten years he's run his trains on Hamilton time.



Back of Every Time-Table

To get in "on time," trains must keep close to schedule every mile of the way.

Railroad schedules are so complex these days, that to avoid confusion and delay trains must keep close to schedule every mile of the way.

For every train, on every time-table, there are dozens of men—dispatchers, conductors, engineers—who work with an eye always on their watches. They time their trains with the watches they carry. Were these watches inaccurate, time-tables would lose half their dependability and convenience. The Hamilton times most of the country's fast limited trains.

Make Your Gift a Hamilton

There are accuracy, beauty, and enduring service in the Hamilton—an appropriate gift for any occasion, any season.

Your jeweler has a Hamilton model to suit every taste—from wrist-watches and thin models for men to ladies' bracelet models. Prices range from $36.00 to $185.00. Movements, $19.00 ($20.50 in Canada) and up.

Send today for the "Timekeeper." You will be interested in this little booklet about the manufacture and care of fine watches. The various Hamilton models are shown with prices.

HAMILTON WATCH CO.

Dept. 35 LANCASTER, PENNSYLVANIA

AT THE FIRST DROP OF RAIN

Obey that Impulse

Put on Your

WEED TIRE CHAINS

THE ONLY DEPENDABLE SAFEGUARD AGAINST SKIDDING

AMERICAN CHAIN CO., INC., BRIDGEPORT, CONN.

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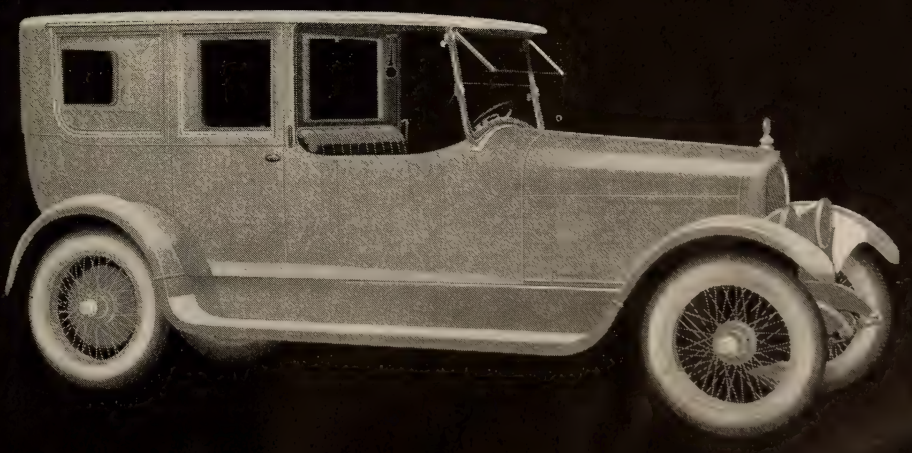
MARMON 34

Below is pictured an exact likeness of the Marmon Limousines sold to the French High Commission for the use of the General Staff. No greater distinction has been conferred on any American car.

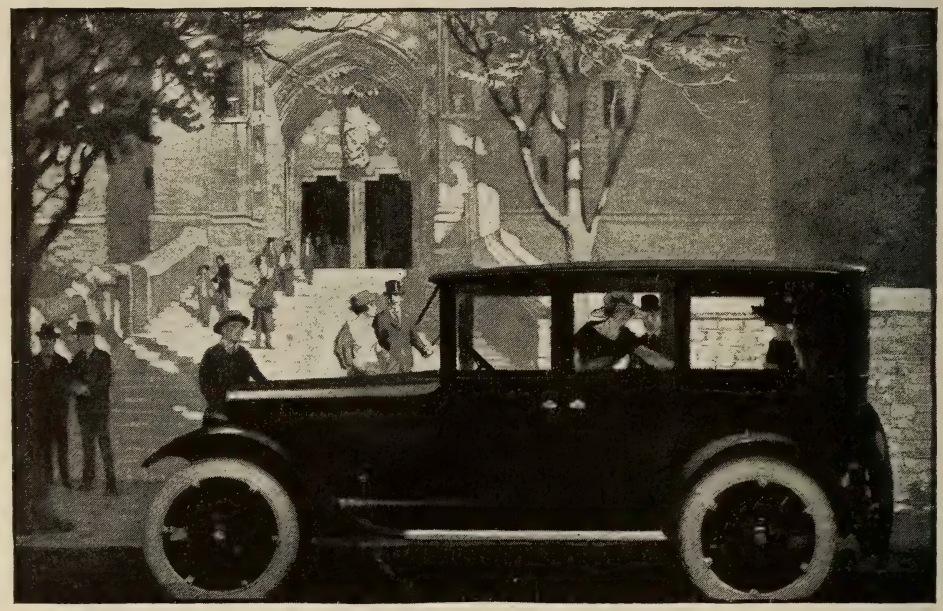
NORDYKE & MARMON COMPANY

Established 1851 — Indianapolis, U. S. A.



CHANDLER SIX

Famous For Its Marvelous Motor



THE MOST PLEASING NEW SEDAN

THE whole motor market offers no other new model more attractive than the Chandler Sedan of the new series Here is an exceptionally fine car, most graceful and dignified in design, luxurious in finish and appointments, big and comfortable and economical. It is the finest development of the closed car type, handsome in style, most substantially built and providing unusual service in any season and any weather

The high hood and radiator, characteristic of all the new series Chandler models; the permanent window posts; the four full-length doors, with all hinges concealed; the undivided front seat; the wide, deep cushions, and the beautiful silk plush upholstery are especially pleasing features.

The Chandler Sedan body is one of several attractive bodies mounted on the famous Chandler chassis, distinguished for its marvelous motor and sturdy construction throughout

SIX SPLENDID BODY TYPES

Seven-Passenger Touring Car, $1795 *Four-Passenger Roadster, $1795*

Four-Passenger Dispatch Car, $1875

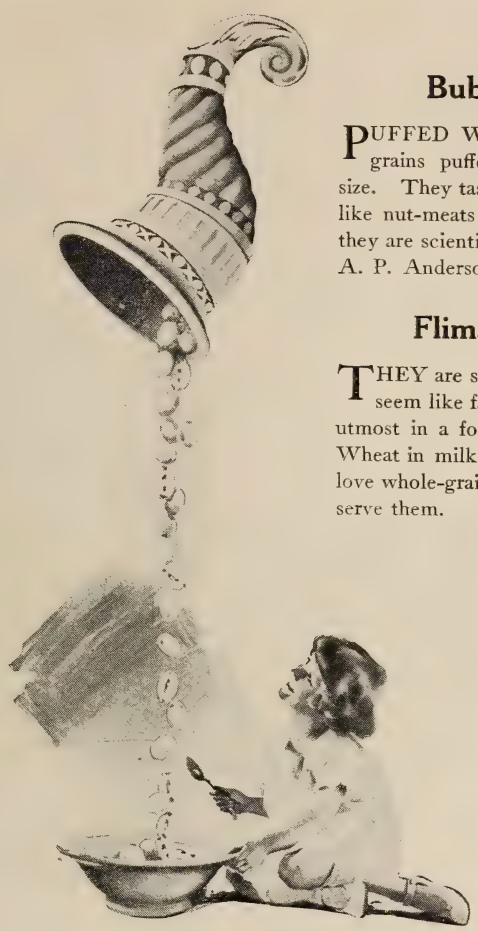
Seven-Passenger Sedan, $2695 *Four-Passenger Coupe, $2595* *Limousine, $3095*

All prices f. o. b. Cleveland

Dealers in all Principal Cities and Hundreds of Towns

CHANDLER MOTOR CAR COMPANY, CLEVELAND, OHIO

Export Department: 1790 Broadway, New York Cable Address: "CHANMOTOR"



Bubble Grains

PUFFED Wheat and Rice are whole grains puffed to eight times normal size. They taste like food confections—like nut-meats puffed and toasted. But they are scientific foods created by Prof. A. P. Anderson.

Flimsy—Flavory

THEY are so thin, so fragile that they seem like fairy foods. Yet the very utmost in a food for children is Puffed Wheat in milk. If you want a child to love whole-grain foods this is the way to serve them.

We Explode

The Wheat, So Every Atom Feeds

THESE wheat bubbles are created by internal steam explosion. We cause in each kernel more than 100 million explosions—one to every food cell.

The purpose is to fit the grains for easy, complete digestion. And to make every element available as food.

So Puffed Grains are ideal foods for any hungry hour. Not for mealtime only, but between meals. Crisp and douse with melted butter and let children eat like peanuts.

Mix in every dish of fruit. Serve in every bowl of milk. Scatter like nut-meats on ice cream. Serve in soups.

Puffed Wheat Puffed Rice
Corn Puffs

All Bubble Grains—Each 15c, Except in Far West

The Quaker Oats Company

Sole Makers

(3181)

Added enjoyment is assured to simple meal or formal dinner by golden, flake-light NABISCO Sugar Wafers with their delicious creamy filling. Now sold in the famous In-er-seal trademark package.
NATIONAL BISCUIT COMPANY
NABISCO
INER SEAL

Never can be forgotten those brief sentences

WITH which President Lincoln dedicated the great field of Gettysburg to the nation. In that simple but immortal address can be read the spirit of a people united, indivisible forevermore. In the years which have intervened this spirit of union has been made stronger by vast industries of peace which have lightened labor and spread comfort and prosperity throughout the land. Foremost in the development of concrete, the Lehigh Portland Cement Company, serving the nation with wide-spread mills from coast to coast, looks forward to coming years with the hope of ever increasing service to the nation.

ALLENTOWN, PA.
CHICAGO, ILL.
SPOKANE, WN.
New York, N. Y.
Boston, Mass.
Philadelphia, Pa.
Jacksonville, Fla.
Kansas City, Mo.
Minneapolis, Minn.
New Castle, Pa.
Omaha, Neb.
Pittsburgh, Pa.
Mason City, Iowa
Richmond, Va.

LEHIGH PORTLAND CEMENT COMPANY

The National Cement

LEHIGH CEMENT

Superspun
REG. U.S. PAT. OFF.

Formerly called Empire Wash Crepe

This supreme silk for men splendidly justifies its name—Superspun—a master weave. It is made in many designs of rare beauty and its wearing qualities are remarkable. Other Empire Loomcraft Silks—all washable shirtings of distinctive pattern and enduring texture—are **Mellowspun, *Shapspun, *Guildcrepe, *Chateau, *Commodore Crepe, *Kingcloth.* (*Reg. U.S. Pat. Off.)

If you have your shirts made to order, ask your shirtmaker to show you his complete assortment of Empire Loomcraft Silks. The name is woven in the selvage.

If you prefer ready-to-wear shirts you can find them made of these silks at most of the better shops and the Empire Loomcraft label is in every shirt to safeguard you against inferior silks.

Empire Loomcraft SILKS
REG. U. S. PAT. OFF.

General Motors Trucks

—and Business Prestige

IT would be hard indeed to find a better example of the sort of prestige coveted by all high-class retail business than that of The Bailey, Banks & Biddle Company, the famous jewelers of Philadelphia.

Founded in 1832, this house is a Philadelphia institution. Through more than four score years it has been accorded the patronage of the fine old aristocratic families of America's first capital.

Nearly 100 years years ago The Bailey, Banks & Biddle Company sold its precious wares of jewels and plate in a quaint colonial shop and delivered them in a horse-drawn coach.

Today the company occupies a magnificent modern store, containing so extensive a collection of precious stones, jewelry, and objets d'art that it is one of the showplaces of Philadelphia.

And today The Bailey, Banks & Biddle Company is using for its delivery service five GMC Trucks, finished and appointed in a style appropriate to their occupation.

The Bailey, Banks & Biddle Company bought the first three in 1915, and in the following year purchased two more, making a fleet of five which has now been in service from three to four years.

GMC Trucks are for high-class concerns that want their delivery equipment properly to represent them in appearance and performance. GMC reliability has become proverbial—GMC construction is the reason.

The General Motors Corporation gives to GMC Trucks a financial backing that assures permanent availability of service and parts.

THE GMC FRONT AXLE

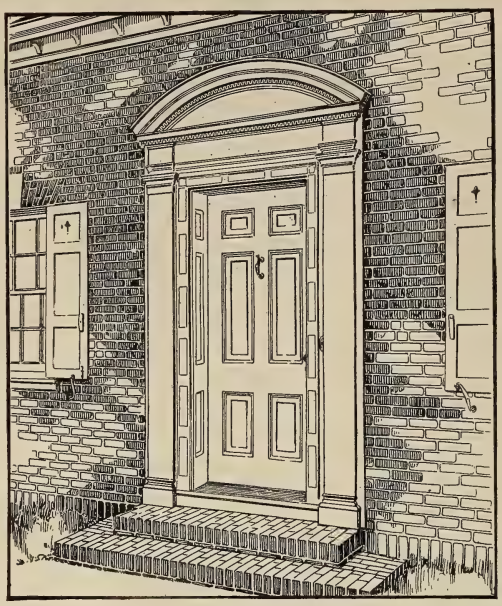
Great tensile strength with light weight are combined in GMC Front Axles. Special analysis steel, heat-treated, is employed, with steering knuckles and knuckle arms drop-forged and heat-treated.

GENERAL MOTORS TRUCK COMPANY

One of the Units of the General Motors Corporation

PONTIAC, MICHIGAN, U. S. A.

Branches and Distributors in Principal Cities (530)



Your Housewarming

lasts the winter through where you "request the presence" of MONARCH Metal Weather Strip in your home

No matter how costly your woodwork may be, there is a natural weathering process that "seasoning" cannot control. Windows and doors that fit perfectly when new will shrink and swell during different seasons, leaving cracks between the sash and frame that aggregate in each case an opening equal to more than sixteen square inches. This hole, four inches square, in every window is a handicap to the heating plant that cannot be overcome by excess radiation, but only by excess consumption of coal.

Monarch Metal Weather Strips completely seal these cracks between sash and frame. They keep out cold and dampness, keep your home warm and cozy within, and standardize the temperature of the entire house at a 20 to 40% reduction in coal consumption.

There is a specially-designed Monarch type of strip for every kind of outside opening. Self-adjusting to shrinking and swelling of sashes and frames, Monarch's first cost is its final cost.

Look up Monarch Weather Strips in your telephone directory and let our licensee tell you more about them. Or, if Monarch is not listed in the book, write us direct for additional information.

Monarch Metal Weather Strip Co.

5100 Penrose St., St. Louis, U. S. A.

"Weather strips are 100% fuel conservation."—*U. S. Fuel Administration*

August 23, 1918 P. B. NOYES, Director of Conservation

MONARCH
METAL WEATHER STRIPS

'Royal Cord' one of the five

A Tip from Tacoma

The 35x5 'Royal Cord' tires on the rear wheels of my 12-passenger Hudson have totaled over 21,000 miles and are still in good condition. I think, if I had used 'Royal Cord' tires exclusively during the past year I would have saved a good many hundred dollars.
—David Crockett, Tacoma, Wash.

A 34x4 'Royal Cord' has made a total mileage of 43,091 miles on my 7-passenger Oldsmobile car on a stage run. Of this mileage over 18,000 miles was run on the right rear wheel.
—B. Henry, Tacoma, Wash.

Two 37x5 'Royal Cords' have covered 28,000 miles on the rear wheels of my 11-passenger Stevens-Duryea passenger bus. Both tires are still in service, one having totaled to date 34,000 miles and is still in fair condition.—Karl Brown, Tacoma, Wash.

I have a 36x4½ q. d. 'Royal Cord' casing which made a total mileage of 32,386 miles on one of my 20-passenger Winton buses. The car weighs over 9000 pounds fully loaded and makes an average of 30 miles an hour. I have three other 'Royal Cords' each of which has totaled 25,440 miles on the rear wheels of this same car.
—Sumner and Tacoma Stage Co., Inc.

Tacoma is the center for many motor bus lines which operate in the mountains of Washington. It is their job to struggle up the rough, tough going of the foothills, then down the steep trails into the valleys—and thus to connect numerous widely separated points the railroads fail to reach.

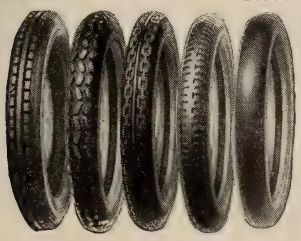
With the unusual conditions in mind, it is a most significant fact that Tacoma stage drivers are virtually unanimous in their endorsement of United States 'Royal Cords'.

We have no desire to boast of long mileages. Too many conditions influence the service a tire may give. We merely quote these letters to bring home this fact:

'Royal Cords' are built to endure. Their value proves up in extra miles—extra dependability. It manifests itself in the extra service exemplified by 'Royal Cord' success on Tacoma stages.

Surely, tires that will stand up and keep on standing up under such merciless conditions must have the stuff you want in your tires.

'Royal Cord' *'Nobby'* *'Chain'* *'Usco'* *'Plain'*



For passenger and light delivery cars—'Royal Cord', 'Nobby', 'Chain', 'Usco' and 'Plain'. Also tires for motor trucks, bicycles and airplanes.

United States Tires are Good Tires

How a small business became the largest of its kind

A true story especially valuable to any man who is, or hopes to be, in business for himself

SOME years ago, in the corridor of a downtown office building in New York, a very little business was started. It dealt in a very small commodity—theatre tickets.

Today that business has a large establishment on Broadway near Forty-third Street and branches in a half dozen New York hotels. Its annual turn-over runs into the millions. "McBride's" has become a national institution patronized by thousands of successful men and women in all parts of the land.

"The average man could double his success"

WHAT was it that happened to the "nice little business" to cause it to become the largest business of its kind?

John McBride, one of the three men who have made it, answers that question this way:

> "The Alexander Hamilton Institute's Modern Business Course and Service came to us at just the right time. It taught us to think in large terms; it gave us increased self-confidence. We were no longer satisfied to have a nice little business; we determined to have the largest business of its kind in the world."

Only successful men and women deal with the McBrides; those who are glad to pay 50 cents additional on each theatre ticket for the sake of service and convenience. The leaders of finance and industry thruout the country are their customers.

> "I have studied these successful men," Mr. McBride says, "and the quality they have which other men lack is simply this—complete faith in themselves. That faith is founded on the knowledge that they are masters of business; that they can deal with any crisis when it arises and can reach out and grasp any opportunity when it occurs.
>
> "I believe the average man could double his faith in himself in a few months if he would make himself master of the fundamentals of business thru such a training as the Alexander Hamilton Institute can give."

No business is different

YOU say that the McBride business is "different." Mr. McBride does not think so. He found that he needed to know credits, and merchandising, office management, corporation finance, and investment, salesmanship, and advertising—the very same business fundamentals that apply in every office and factory in the land.

John McBride, of McBride's, Inc., New York City, the largest company of its kind in the world

Fundamentally his business is no different than that of any other business. That is why he has profited by this Course and Service just as many men have in every line of business.

More than 95,000 men, representing every kind and department of business, have tested the practical value of this training. They have proved that training breeds self-confidence, and self-confidence means business progress and increased earning power.

Send for "Forging Ahead in Business"

FOR men who really care about their future the Institute publishes a 116-page book entitled "Forging Ahead in Business." Would you today like to begin to acquire that training which gives a man confidence to seize his opportunity when it comes? Then for you there is a copy of this book—free. Send for your copy now.

Alexander Hamilton Institute

171 Astor Place — New York City

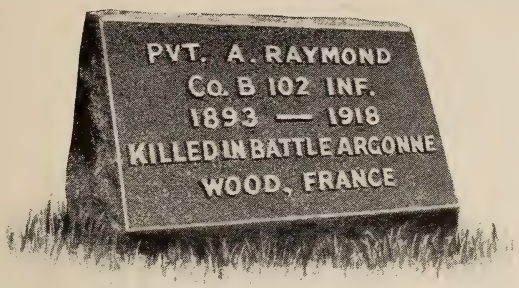
Send me "Forging Ahead in Business" FREE

Name .....
Print here

Business Address .....

.....

Business Position .....



The Cenotaph

—derived from two Greek words signifying "an empty tomb" has come by later usage to mean any form of memorial erected in honor of one whose mortal remains are elsewhere interred or lost.

It is a particularly fitting tribute to the sailor lost at sea or the soldier who lies buried in a foreign land.

Many such memorials will be placed in our cemeteries by the relatives and friends of those who so perished in the World War.

Whether they take the form of simple marker or costly monument, Dark Barre Granite, the "Rock of Ages"—because its beauty is everlasting—is a particularly appropriate material for this purpose.

Write for the "Rock of Ages" booklet and consult your local dealer in memorials as to design

BOUTWELL, MILNE & VARNUM CO.
Dept. H Montpelier, Vermont

Quarries at Barre, Vermont
the Granite Center of the World

ROCK OF AGES
TRADE MARK

We advise the purchase and are making a Specialty of

U. S. Government Bonds

and are prepared, at any time, to buy or sell large or small lots

We have prepared a circular on investment securities which we shall be glad to send you on request.

Kidder, Peabody & Co.

115 Devonshire St.
Boston

17 Wall Street
New York

Pure Coffee

The reason why people drink 1,000,000 cups of G. Washington's Coffee every day, is because

G. Washington's COFFEE

Went to War! Home Again.

is the highest grade of pure coffee. It is *not* a substitute. It is absolutely pure. That is the explanation of its delicate aroma. Makes delicious iced coffee.

Ready instantly when you pour on the water—hot or cold.

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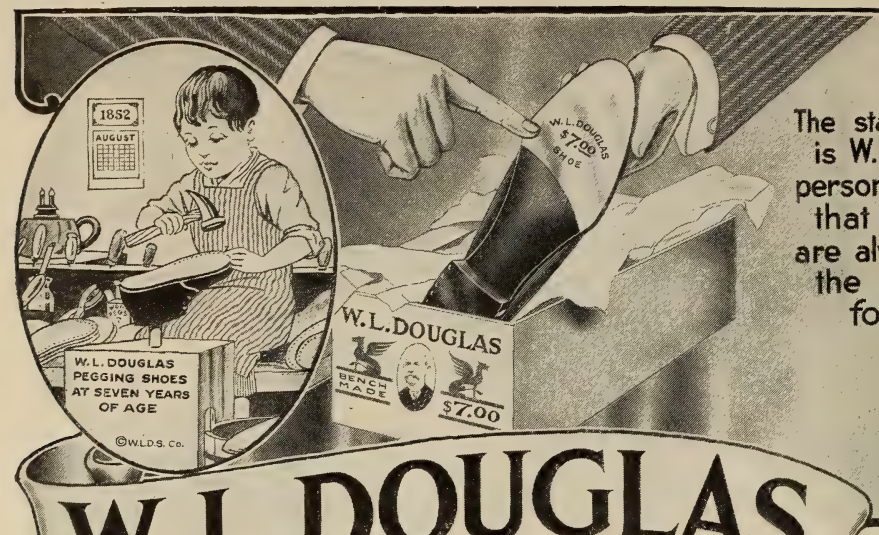

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SHATTERED CAPITALS OF CENTRAL AMERICA

By Herbert J. Spinden

DOMINGO JUARROS, the historian, begins his account of the earthquakes that overwhelmed the first two capitals of Guatemala with this pious generalization:

"From the time the first transgressors were expelled from Paradise, miseries, misfortunes, and calamities have formed a prominent part in every history."

The man-made cataclysms of the Great War have held the attention of the world to such an extent that titanic disturbances due to blind forces of nature have been all but overlooked. Even now the destruction wrought by repeated earthquakes in Central America—destruction as grim and heartbreaking as that made by steel and flames along the battle line in France—takes its chief sentimental interest from the fact that the Republic of Guatemala has been a sincere associate of the United States in the Great War.

The city of San Salvador, capital of the Republic of Salvador, was destroyed on June 7, 1917; but it was rapidly rebuilt, and early in 1919 showed few indications of the terrible shaking it had received. On April 28, 1919, however, a still greater catastrophe overwhelmed the city, and practically all houses that had been restored were again leveled and many more deaths resulted.

In December, 1917, and January, 1918, the total destruction of Guatemala City occurred, the heaviest shock coming on January 24, 1918. In October and November of 1918 and as late as 1919 intense vibrations were still being felt.

At the present time the volcano of Irazú, in Costa Rica, is in a state of eruption, possibly due to the seismic disturbances farther north.

WHERE THE MOUNTAINS OFTEN TREMBLE

The recent catastrophes in Central America are but the latest of a long list recorded since the coming of the Spaniards. Scarcely a city between the frontiers of Mexico and Panama but has suffered from the dreadful instability of Mother Earth. Many have been destroyed and rebuilt at other sites only to be again destroyed. The coats of arms and other insignia of the Central American republics commonly show volcanoes. A certain volcanic quality seems to have entered into their political history.

The circumstances of the recent earthquakes in Salvador and Guatemala were strikingly different. The first was associated with a tremendous eruption of lava, but in connection with the other there was no eruption of any sort; only tremendous shakings, as though a giant with mountains heaped about his shoulders were struggling to free himself.

Both these earthquakes were probably caused by a slipping or faulting of the earth crust, although there are no surface

THE OLD-FASHIONED CONSTRUCTION OF SAN SALVADOR

Built with earthquakes in view, it is called Bajareque, and consists of a lattice of upright poles and horizontal cane rods, the interstices being filled in with mud and the whole surfaced with plaster. Almost all the destruction results from the ravages of termites (white ants), which eat the bases of the uprights so that the walls collapse when the quake comes.

A HOUSE OF LIGHT CONCRETE CONSTRUCTION REDUCED TO A PILE OF DEBRIS BY THE EARTHQUAKE: SAN SALVADOR

Structures of heavily reinforced concrete weathered the vibrations for the most part.

indications of this. In the case of San Salvador the earthquake doubtless occurred as a result of the eruption of the lava and the spectacular activity in the old crater that followed it.

WHERE MISERY AND MADNESS REIGNED

From the vivid story sent to the National Geographic Society by Mrs. Martha Toeplitz, I quote as follows:

"It is Corpus Christi day in Salvador's beautiful and flourishing capital. Churches and dwellings are decorated and the streets filled with a throng in festal mood. The procession approaches, led by a band of musicians fiddling and scraping away in truly Southern fashion. White-clad maidens, with wreaths of flowers and veils flowing in the soft, warm breezes, priests and choir boys, the images of saints borne aloft, and the people—the typical 'festa' crowd.

"Suddenly rumbling and grumbling below, darkness, crashing walls, cries and screams from the panic-stricken people. What a never-to-be-forgotten contrast! The bright sky, the festa, the pretty homes and gay shops, the fruit of years of labor and industry wiped out in less time than it takes to tell.

"Where there was peace and happiness, misery and madness reign, and the earth, breathing heavily, shakes as though she wished to rid herself of all man-made ballast. Edifices crumble like packs of cards, showers of brick sweep the air, dull thuds and terrible crashes, screams and prayers for mercy, and with it all the wild, uncanny song of the church bells.

"The world seems to have come to an end and Hell opens her gates. A new crater suddenly forms on the mountain side, acids explode in the drugstores, mains break, and the town, quivering in every limb and stone, becomes a sea of flame.

"In vain do the bells chime in broken towers; in vain the tears and prayers! The quakes increase in violence till not a house remains standing, and a hundred red tongues of fire lick the ruins in mad fury.

"Everything is broken, shattered, and burned; but the furious elements are not yet appeased. Terrific thunder-storms beat down upon the helpless people huddled together in the park, enter every hole and crack, and destroy whatever the earthquake and fire have left.

"Days and nights follow without food or shelter, until very, very slowly the quakes become more infrequent."

The first shock at San Salvador came without warning, at 6.50 p. m., June 7, 1917. Although this quake was felt throughout a large part of Central America and was recorded on the scrolls of seismographs in the United States, it was not the one that did the most serious damage in that city. It appears, however, to have been responsible for the opening of the lava vents on the side of the volcano opposite that on which the capital is situated.

HOW THE SHOCKS BEGAN

The first shock was followed at intervals of ten minutes by two others which drove the entire population of the city into the streets and open squares.

Then at 9.05 came the heavy shock which caused the greater part of the destruction in San Salvador. An hour or so before this time the sky had been illuminated by the outpouring of liquid stone from the new vents, and it is not impossible that a slumping of the earth's crust under the city itself resulted from the release of pressure after a large quantity of lava had run off.

At this time a pounding sensation under foot was noted, as well as a horizontal wave movement, and cracks are said to have opened and closed.

Many persons declare they heard sounds of rushing water and some aver that the water-level in wells rose and sank. But it is too much to ask for steady nerves and scientifically exact observations when the earth shakes at night and the lights go out, when the air is filled with shrieks and prayers and choking dust, and when in the dark the heavy tiles cascade from the roofs and the walls sway and fall.

It is capable of proof, however, that temperatures under the earth's crust near San Salvador were greatly increased. Artesian wells being dug on the Finca Modelo showed at first an increased water pressure and later an increased

THE NEW VENTS IN THE VOLCANO OF SAN SALVADOR FROM WHICH THE LAVA POURED OUT ARE GREAT CREVASSES RATHER THAN CRATERS

Steam still rises in puffs from one or two of the vents, especially from a vent to which the name "Thunderer" has been given.

LOOKING OUT OVER THE FUMING LAVA A FEW DAYS AFTER THE FLOW OCCURRED

Many plantations were drowned by this strange flood, whose onslaught was so sudden that some of the natives were caught and buried by it.

temperature. The drills had to be withdrawn because at a depth of 2,000 feet they were greatly overheated.

A LAVA FLOW WHICH WOULD FILL TWO PANAMA CANALS

The lava flowed out from a series of eight or more vents, apparently situated along a fissure running down the mountain side. The area covered by the lava has a length of nearly seven miles, a breadth of over three miles, and an average depth of perhaps thirty feet. The quantity of liquid stone that belched forth from the fiery mouths must equal twice the 200,000,000 cubic yards excavated from the Panama Canal.

The lava is mostly dead black, but sometimes brown with a metallic luster. It has a porous, stringy appearance, with bubbles elongated in the direction of the flow. The current structure is very interesting, and one sees petrified ripples, eddies, cascades, and foaming crests.

Near the vents one finds very strange and beautiful forms, where lava has streamed and dripped like molasses and has then solidified before it could spread and lose its stringy quality.

In company with a party of diplomatic officials and Mr. S. G. Morley, of the Carnegie Institution, I made a visit to the lava where it had blocked the highway and the railroad, and again higher up the mountain side, where it had swept down through coffee plantations.

Both Mr. Morley and I went far out over the broken crust to some fuming vents. It was apparent that the lava solidified quickly on the surface, and that the top crust was lifted bodily on the living streams below.

The flow is not level, but extremely irregular, and in many cases the slabs are piled up in pressure ridges. The sides and the advancing front did not have sufficient heat to fire the vegetation, and even far out in the flow there are giant ceiba trees around which the lava has heaped itself like ice above a bridge pier.

The vents from which the lava issued are not especially spectacular. For a long time they were too hot to permit a very close inspection, but now they can be approached easily. Steam and smoke rise from the vents and especially from one called the "Thunderer." The highest of the new mouths is considerably below the level of the bottom of the old crater.

An early description of the volcano of San Salvador runs as follows:

"The city is situated on the flank of a very high volcano, of wide circumference, which is now extinct, probably because it consumed all the materials of a combustible nature which were in it during the period of its activity. It has an enormous crater, half a league broad and very deep.

"In descending into it are found two terraces, or platforms, similar to those in limekilns. From the lower terrace rises a smoke so offensive that a Spaniard who reached there barely escaped suffocation. The mountain is covered from top to bottom with great cedars, pines, and forests of other trees." . . .

In this description no mention is made of the lake which in recent times filled the bottom of the crater and on which a rowboat had been launched for the pleasure of hardy picnickers (see page 193).

A SIGHT THAT OVERWHELMED THE SENSES

The recent activities in the crater began some time after the lava had run out from the side of the mountain. It is not unlikely that the earthquake opened up the sealed chimney sufficiently to let water come in contact with the superheated core of the mountain, and that the steam then blew out the obstructions. At any rate, the lake, with a fountain in the middle, boiled furiously for days. Then a black mass of cinders and lava forced itself spasmodically above the water.

When the phenomenon was at its best, we climbed a steep road, through maize fields and coffee plantations, to the rim of the crater, nearly four thousand feet.

The thickly peopled valley rolled out before us as we ascended, and far below us in the distance was Lake Ilopango, itself a great crater, and mountain ridge upon mountain ridge beyond that. But the sight in front, from the rim of the crater, overwhelmed the senses.

Before us was a great funnel, over a mile in diameter and a thousand feet

THE LAVA FLOW FROM THE VOLCANO OF SAN SALVADOR

It had swept through a coffee plantation and had come to halt in a maize field. Finger-like side flows run off from the main stream, which is six or seven miles long.

WHERE THE LAVA FLOW BLOCKED THE SALVADOR RAILROAD BETWEEN QUEZALTEPEQUE AND SITIO DE NINO

The lava covered the track for a distance of over three miles. The railroad now passes directly over the lava.

STRANGE FORMS OF LAVA THAT DRIPPED IN A FINE STREAM AND SOLIDIFIED BEFORE THEY COULD FUSE AGAIN INTO SOLID MASS

AN OLD CRATER LAKE

After the lava had flowed out from the side of the mountain (see pages 188-190) the lake in the old crater (see page 193) boiled dry and the old volcano of San Salvador, which had been quiescent for several hundred years, resumed its activity (see pages 195 and 196).

WHERE THE LAVA FLOW BLOCKED THE HIGHWAY NEAR QUEZALTEPEQUE

This spot is miles distant from the vents and yet the black lava is piled up to a height of 30 feet or more in rough pressure ridges. The vegetation was not set on fire because the stream of liquid stone was pushing forward and dropping on either side masses of lava already solidified and cooled.

deep. The walls were banded rocks, dull red and dark gray in color, showing the rings of growth by which the volcano had built up its cone.

LOOKING DOWN INTO AN ACTIVE CRATER

Clinging to the shelves and the sheer cliffs were vines and trees silvered with ash. In the dusty center of the dried-up lake was an opening like the mouth of a sunken tube, and from this opening a black geyser of cinders and lava fragments shot up at intervals, with a throaty noise, while the earth trembled.

When the black geyser had forced itself to a height of perhaps four hundred feet, the steam burst out in jets of purest white from the poised mass. Then the cinders rained down and the lava slabs fell like the crinkled ash of burnt paper around the mouth of the tube. The columns of white steam almost blotted out the background, as it blossomed into clouds and rose high above the rim of the crater.

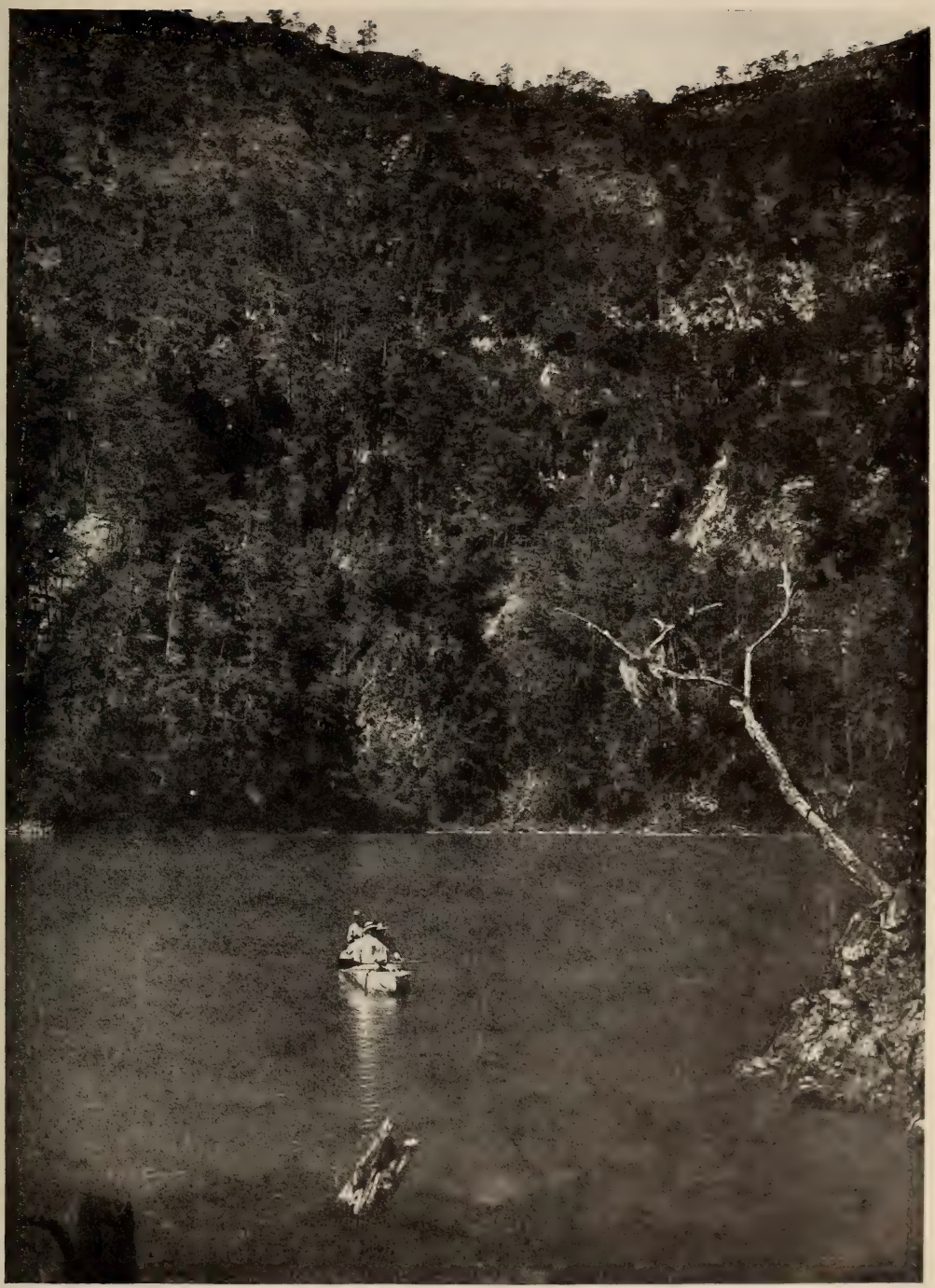
At this time there still were pools of violently agitated water near the margin of the old lake. Later, when these were all consumed, the steam turned to smoke and the display of fireworks at night was worth the discomfort entailed by a visit to the crater's rim.

As the days passed, a little cone grew up around the mouth of the tube. The process of volcano-building was dramatized for a handful of humans in a gallery far above the stage.

A CITY OF EARTHQUAKE SORROWS

The first city of San Salvador was founded by Jorge Alvarado at La Bermuda in 1528, but after about ten years the seat of government was changed to its present location.

San Salvador has been visited many times by disastrous earthquakes, especially noteworthy being those of 1575, 1593, 1625, 1656, 1798, 1839, 1854, 1873, and 1917. Aside from the volcano of San Salvador which apparently had been dormant since the Spanish occupation until its recent outburst, there are many other volcanoes in Salvador, and some of them have been very active.



THE CRATER OF THE VOLCANO OF SAN SALVADOR AS IT APPEARED BEFORE THE RECENT ERUPTION

A lake occupied the bottom of the crater and the steep slopes were covered with pine and other trees. Contrast this peaceful lake with the present scenes (see pages 191, 196).

Drawn by A. H. Bumstead

A MAP OF CENTRAL AMERICA, SHOWING THE PRINCIPAL VOLCANOES WHOSE ERUPTIONS HAVE FOR CENTURIES LEVIED A HEAVY TOLL ON LIFE AND PROPERTY

THREE STAGES OF THE ERUPTION AT SAN SALVADOR VOLCANO

"The last remnant of the lake has disappeared completely. In its place a gate to Pluto's world had formed and in its center blazes a fiery fountain. It seems incredible that clouds of such volume filled with gigantic stones and lava could shoot from comparatively so small an opening. They bound forth with such tremendous force, such terrific thundering crashes, that the crater walls tremble as violently as the earth. The air pressure is so strong that we are thrown off our feet. A smoke column rises about 100 yards high in the air, followed by an explosion compared with which that of the 42 cm. guns would seem like that of a toy. The crater itself is like the sounding board of a phonograph and the crater walls repeat the detonation twenty times and more. It sounds for all the world like a continuous bombardment. The gases make their escape with hissing and whizzing and evaporate in long bluish flames."—*Note from Mrs. Martha Toeplitz.*

TOWARD THE END OF THE ACTIVITY OF SAN SALVADOR VOLCANO THE STEAM TURNED TO SMOKE OR AT LEAST SEEMED CHARGED WITH VOLCANIC DUST

The old trail down the precipitous crater walls has been destroyed by landslides. The walls rise about 1,000 feet above the lake.

The volcano of Santa Ana was especially violent in the sixteenth century. For the year 1643 an eruption is accredited to San Vicente. In 1844 a great lava flow, analogous to the recent one of San Salvador, broke out of the volcano of San Miguel. But the most romantic story is that of the formation of Izalco volcano in historic times.

A FLASHING VOLCANO WHICH ACTS AS A LIGHTHOUSE

This cinder-covered peak, nearly five thousand feet high, has built itself up from what was level plain at the base of Santa Ana volcano in 1770.

During its long periods of activity Izalco throws up clouds of smoke and steam in great puffs, lit from below by the flame in the crater. These clouds rise high above the volcano and scarcely dissolve before others take their place. From this flashing effect, which can be seen far at sea, the volcano is known along the coast as the lighthouse of Central America.

John L. Stephens, in his inimitable journals, describes a view of the activities of Izalco in 1840:

"We came out suddenly upon an open front, higher than the top of the volcano, commanding a view of the interior of the crater, and so near it that we saw the large stones as they separated in the air and fell pattering around the sides of the volcano. In a few minutes our clothes were white with ashes, which fell around us with a noise like the sprinkling of rain.

ERUPTIONS AT REGULAR INTERVALS

"The crater has three orifices, one of which was inactive; another emitted constantly a rich blue smoke; and after a report deep in the huge throat of the third, appeared a light-blue vapor, and then a mass of thick black smoke, whirling and struggling out in enormous wreaths and rising in a dark, majestic column, lighted for a moment by a sheet of flame; and when the smoke dispersed, the atmosphere was darkened by a shower of stones and ashes.

"This over, a moment of stillness followed, and then another report and eruption, and these continued regularly, at intervals, as our guide said, of exactly five minutes, and really he was not much out of the way. The sight was fearfully grand."

Salvador has many fine lakes that occupy craters. Of these Lake Ilopango is perhaps the most interesting to the traveler. Lake Cojutepeque, with its sheer walls, is situated in the flanks of the great volcano of Santa Ana, which has been scarred and scored by so many wars of the giants.

Lake Guija, on the boundary between Salvador and Guatemala, was formed by a lava dam from an eruption of San Diego volcano. Stories are current of towns submerged beneath its waters. The level of the lake is sufficiently above the level of the old valley to offer great possibilities of water-power below the lava dam.

THE CHRISTMAS EARTHQUAKE IN GUATEMALA

The series of earthquakes culminating in the heavy shocks that destroyed Guatemala City began on November 17, 1917, with a shock centering in the region of Lake Amatitlan. A large part of the town of Amatitlan was then thrown down. From this date on the trembling of the earth was continuous, from ten to thirty light quakes being recorded every day. Naturally the populace became more or less hardened to them, but there was much uneasiness concerning the outcome.

The first disastrous earthquake fell on Christmas night, at about 10.20. It did considerable damage and served as a strong warning, which doubtless saved many lives, for at 11.23 came an extremely heavy shock, which brought down many houses and killed, perhaps, fifty persons.

All night, with a full moon in the untroubled sky, the populace huddled in parks while the earth trembled.

On December 29, in the afternoon, a heavy vibration again ran through the shaken city, and more walls fell. At 10.40 p. m., on January 3, a long and heavy shock brought down the towers of the cathedral and many other landmarks,

Photograph by Rossolimo de Strelecki ©

LOOKING TOWARD ONE OF THE CRATERS OF IZALCO VOLCANO, FROM WHICH THE SMOKE IS RISING IN A GREAT COLUMN

The ashes spread broadcast by volcanoes greatly enrich the land and often more than repay the property damage done by earthquakes and lava flows. The volcano was doubtless much higher at one time.

Photograph from M. Rohde

GUATEMALA: QUEZALTENANGO

GUATEMALA: CAMINO REAL (THE ROYAL HIGHWAY)

Photographs from M. Rohde

EARTHENWARE SALE: MARKET-PLACE AT CANTEL, GUATEMALA

Photograph from M. Rohde

A WAYSIDE SCENE IN GUATEMALA: AGAVE (NOT THE KNOWN ALOE)

while on January 24 came the fourth and heaviest earthquake, sufficient to ruin nearly every edifice.

A HOTEL MADE OF DOORS

A bit of personal narrative may not be out of place here. I was fortunate enough to arrive in Guatemala City about twenty minutes before the earthquake of January 24, 1918. As has been said, three other heavy shocks had already left their mark upon the city. All the hotels were ruined and temporary shelter had to be sought in shacks set up in open squares. I secured a bed at the new Hotel Roma, which was constructed of doors taken from the old hotel of this name and erected in the old carriage yard in front of the railroad station.

The sun had scarcely set and a full moon was rising in an unblemished sky. For me there was not on this occasion any premonition, although at other times I have sensed the coming vibration for a brief moment, as one senses a coming storm. The dishes on the table began to rattle and dance and the walls and tin roof to creak and sway.

We crowded through the doors into the open street, stumbling and falling. From near and far came the roar of falling walls. The yellow dust arose, obscuring the moon. Then the trembling died away and ceased, but the dust pall lay over the stricken city.

These last shocks apparently centered under Guatemala City, with a radius of destruction measuring thirty miles. Fear was felt lest the earth should give way before the fearful convulsions and a volcano form in the city itself.

The deep cuts of the railroad running to Puerto Barrios were filled in, time and again, and only through untiring labor was the line kept open for long enough periods to rush in supplies.

Not only were houses ruined, but water mains were broken and the people exposed to the dangers of using water which had oozed up in the streets. In the cemeteries the skeletons were shaken out of the burial cists and many remains were afterwards cremated. The loss of life in Guatemala City probably did not exceed two hundred.

Only a few broken walls remain to mark the site of Guatemala's first capital, now known as Ciudad Vieja. The site was selected by the conqueror, Pedro de Alvarado, on St. James Day, 1524, and the actual building was commenced three years later by Jorge de Alvarado. The official title of the city was "St. James of the Gentlemen of Guatemala." The arms granted by Charles V in 1532 were "a shield charged with three mountains on a field gules, the center one vomiting fire, and surmounted by the Apostle St. James, on horseback, armed and brandishing a sword; an orle, with eight shells or, on a field azure; crest, a crown."

MYSTERY IN THE DESTRUCTION OF GUATEMALA'S FIRST CAPITAL

There is some doubt whether the destruction of Ciudad Vieja should be ascribed to an earthquake, to a cloudburst, or to the two combined, but it seems hardly likely that it can properly be ascribed to an actual eruption of the Volcan de Agua.

The crater of this volcano is a grassy basin, containing a few pine trees, at the very summit of an almost perfect volcanic cone, and there are no signs that a lake ever existed in it. The account given by Juarros of the destruction of Ciudad Vieja on September 11, 1541, runs as follows:

"It had rained incessantly and with great violence on the preceding days, particularly on the night of the 10th, when the water descended more like the water of a cataract than rain. The fury of the wind, the incessant, appalling lightning and dreadful thunder were indescribable. The general terror was increased by eruptions from the volcano to such a degree that in the combination of horrors the inhabitants imagined the final destruction of the world was at hand.

"At 2 o'clock on the morning of the 11th the vibrations of the earth were so violent that the people were unable to stand; the shocks were accompanied by a terrible subterranean noise which spread universal dismay. Shortly afterward an immense torrent of water rushed down from the summit of the mountain, forcing with it enormous fragments of rocks and large trees, which, descending upon the ill-fated town, overwhelmed and de-

stroyed all the houses and buried a great number of the inhabitants under the ruins; among the many, Doña Beatriz de la Cueva, the widow of Pedro de Alvarado, lost her life."

THE SECOND CAPITAL IS ALSO DESTROYED

The capital was removed to a new location, a few miles farther away from the base of the Volcan de Agua, and rebuilt in great magnificence, as befitted the governmental and ecclesiastical center of all Central America (as well as Chiapas, Mexico). This second capital is now called Antigua Guatemala.

The various orders, including the Franciscans, Dominicans, Capuchins, Jesuits, Recollects, Mercedarians, Bethlehemites, etc., and the sisterhoods of Santa Clara and Santa Teresa, built monasteries, nunneries, hospitals, colleges, churches, and shrines and the civil government erected many public buildings, including the splendid Palace of the Captains.

ONE OF OVER FORTY CHURCHES IN THE SHATTERED CITY OF ANTIGUA GUATEMALA

This is a view of the ancient cathedral, looking from the apse toward the front. The central part of the nave has fallen, as has the dome. Antigua was the second capital of Guatemala and was destroyed by natural forces in 1773 (see text, page 204).

But numerous earthquake shocks, often associated with eruptions of the Volcan de Fuego, continued to disrupt the most solid constructions. Great damage was done in 1565 and again in 1575-76 and 1577. In 1581 there was an eruption of the volcano, and such vast quantities of ashes were thrown out that lights were necessary in midday.

The years 1585 and 1586 were memorable for an association of earthquake and volcanic eruptions, beginning on January 16 of the former year and extending till December 23 of the latter, when the greater part of the city was destroyed and many persons killed. On February 18, 1651, there were violent vibrations that caused much damage. A chronicle states:

"The tiles from the roofs of the houses were dispersed in all directions, like light straws by a gust of wind; the bells of the churches were rung by the vibrations; masses of rock were detached from the mountains; and even the wild

AN ANCIENT FOUNTAIN IN A PASTURE AT ANTIGUA GUATEMALA

There are many such details to impress one with the quondam beauty of this shattered and abandoned capital.

beasts were so terrified that, losing their natural instinct, they quitted their retreats and sought shelter among the habitations of men."

TIME BEAUTIFIES A CITY IN RUINS

Other disasters are recorded for 1679, 1681, 1683, 1684, 1687, 1689, and 1705. In 1717 the citizens became so alarmed at the terrifying phenomena that they asked leave to abandon the city, but before the license arrived they had recovered from their fears. The fate of Antigua Guatemala was sealed by the formidable earthquakes of 1773, culminating in the dreadful convulsion of July 29.

Today one finds a peaceful town dominated by majestic ruins that the soft hand of Time has made beautiful. The refurbished façade of the cathedral looks down upon the central square of the city and conceals a vast extent of broken vaults. Through a side gate you enter the broken nave and pass down under the central dome, where the pendentives are rich with angels and labyrinthine scrollwork; or you climb to the roof and walk gingerly over the grass-grown hummocks of egg-shell vaulting to the low parapets of the cornice.

Throughout the modern town and, indeed, far beyond its limits, one encounters the wrecks of temples or comes unexpectedly on fountains or wayside shrines. There are said to be over forty edifices of divine worship in Antigua Guatemala—some restored in part, others utterly deserted.

SEEKING SAFETY FOR A CITY IN THE SHADOW OF A CHURCH

When it was apparent that Antigua should be abandoned, the government cast around for a likely spot for the capital and finally decided on the present location of Guatemala City.

The deciding argument for this site

A STREET IN GUATEMALA CITY

For mile after mile, houses are tangles of rafters and heaps of plaster and adobe. The ground will in most cases have to be cleared before reconstruction or restoration can take place.

was the church of the Cerrito de Carmen, which in 150 years had not been damaged by earthquakes. So St. James of the Gentlemen of Guatemala was re-established in 1776 and until Christmas of 1917 did not experience a devastating earthquake—a record of nearly three hundred years for the site.

Over the doorway to this church of the Cerrito de Carmen, leading in from the court, one may read in old-fashioned Spanish the following inscriptions:

Right: "He who aided the foundation of this house was the illustrious Don Antonio Maria Cheberi de Justiniano, conqueror."

Center: "The Virgin Mother of God, conceived without the original sin. In 1620 I. H. S. (Jesus Savior of Men)."

Left: "The founder of this was Juan Croz, religious of the seraphic national order of the Lordship of Genoa."

And now the church that stood on the rock for three hundred years is a ruin, its solid façade shattered, its roof fallen, its dome broken like an egg-shell. But the image has been rescued from its shrine and set up under a temporary roof. Before it services are held.

From the fixed face of the painted Christ one has only to turn the head to see the streets of the "city that was," spread out like a map—deserted streets blocked by fallen houses; and beyond the far-stretching ruins rise faintly through the haze the toothed summit of Pacaya, and to the right of this the cone of the Volcan de Agua.

NICARAGUA AND HONDURAS THE SCENES OF MANY EARTHQUAKES

We need not sketch in detail the volcanic actions that have been so ruinous in this part of Guatemala, especially in the cities of Quezaltenango and Chiquimula, but before closing let us review briefly the experiences of Honduras, Nicaragua, and Costa Rica (map, page 194).

Honduras lies almost entirely outside the area of active volcanoes and represents a geologically old land-mass. However, her territory comes down to the Gulf of Fonseca, which is a hotbed of

THE HOSPITAL SECTION OF THE AMERICAN RED CROSS RELIEF CAMP "MANUEL ESTRADA CABRERA," IN GUATEMALA CITY

Located opposite the Military Academy, in the Reforma, 4,000 tents were loaned by the War Department, U. S. A. These were rushed from Key West. At the time this snap-shot was taken between 1,100 and 1,200 of these tents were set up and nearly all occupied, and foodstuffs were being distributed; medical attention was provided and 8,000 persons had been vaccinated for small-pox and 5,000 for typhoid and paratyphoid. Escula Practica is in the background.

Photographs from W. G. Luckhardt

GUATEMALA CITY

Looking north on 16th Street east from 11th Avenue. Typical of the destruction of the houses.

ESCULA PRACTICA, IN GUATEMALA CITY

This handsome school building, in which the children of the republic were to receive manual training and instruction in the applied arts, had been completed, but not yet occupied, when the catastrophe occurred, reducing the edifice to a mass of ruins. The city of Guatemala has a population of 100,000, of whom nearly five-sixths are of European origin.

Photographs from W. G. Luckhardt

CEMETERY ADJOINING THE GENERAL HOSPITAL IN GUATEMALA CITY

Nearly all tombs were destroyed and opened. It is estimated that 11,000 bodies and four tons of human bones were gathered and cremated.

Photograph from M. Rohde

A PANORAMA OF CANTEL, GUATEMALA, SHOWING THE HUMBLE HOMES CLUSTERED AROUND THE CHURCH: NOTE THE THRONG OF WORSHIPERS ASSEMBLED IN THE PUBLIC SQUARE

GENERAL VIEW OF THE CHURCH OF THE CERRITO DE CARMEN

When the second capital of Guatemala was destroyed by earthquake and it became necessary in 1776 to choose another site, inasmuch as this ancient church had already stood 150 years, the Guatemalans determined to build their third capital around it (see page 204); but even these sturdy walls, after standing for 300 years, succumbed to the violence of the quake of 1917.

IN THE VOLCANO OF IRAZÚ, COSTA RICA, ACTIVITY IS NOW TAKING PLACE
This volcano has several craters, but the flow from these is mud rather than lava.

A CHURCH AT CAMOTAN, GUATEMALA, ON THE ROAD TO THE ANCIENT MAYAN CITY OF COPAN

An example of the splendid edifices erected by the Indians under supervision of Spanish priests. Camotan is a village of perhaps 500 population.

Photograph by Valdeavellano

THE ALTAR SCREEN OF THE CHURCH OF CERRITO DE CARMEN

This beautiful little church, the most beloved in the city, and regarded by many persons as the very symbol of the stability of Guatemala City, has crumpled and crumbled before the reiterated shocks. While the church itself has been destroyed, the image has been preserved and set up under a temporary shelter. The worshiper can turn from contemplation of the figure of Christ to see the ashes and the debris of "a city that was" spreading beneath him in a panorama of devastation.

volcanoes, and her principal southern port, Amapala, is situated on Tigre Island, a typical volcanic cone. Ancient lava flows and deposits of volcanic mud hardened into a light, friable stone are found in central Honduras. Earthquakes have not entirely forgotten this Republic, for only a few years ago the flourishing town of Gracias was utterly wrecked.

Nicaragua, almost equally with her northern sisters, has suffered heavily in the past from earthquakes and volcanoes. Leon, the metropolis of Nicaragua, was formerly located on the shores of Lake Nicaragua, near the base of Momotombo. This capital was destroyed in 1609 and removed to its present site, in the fertile valley of Subtiaba. Even here, however, it has not ceased to suffer.

Masaya volcano was active in 1522, when the Spaniards first entered Nicaragua, and again in 1772, 1858, and 1908. Momotombo, which is nearly always smoking, has had periods of great activity, especially in 1764 and 1852. Ometepe and Madera, with smoke issuing from their summits, dominate the scenery of Lake Nicaragua.

A VOLCANO THAT BLEW OFF ITS OWN HEAD

But perhaps the most sensational eruption recorded in the annals of Nicaragua is that of Coseguina, at the entrance of the Gulf of Fonseca. In 1835 this volcano blew off its head and scattered dust far and wide. The black pall obscured the sun for days, and old Indians still fix their ages and other events in relation to "La Oscuridad Grande"—The Great Darkness. The dust settled thickly over field and forest, and wild animals as well as tame died by thousands from thirst and hunger.

Photograph by Valdeavellano

RELIGIOUS SERVICES BEING HELD BEFORE THE RESCUED IMAGE OF THE CHURCH OF CARMEN

In Costa Rica the Cordillera rises to heights above 11,000 feet and boasts a string of volcanic peaks, some extinct and others occasionally active. Orosi and Tenorio are situated near the southern end of Lake Nicaragua, while the more famous peaks of Poas and Irazú are close to the old capital, Cartago, and the modern one, San José.

Both of these volcanoes have been active in recent years, and the latter (Irazú) had a period of marked activity in 1723 and 1726. Cartago was wiped out by an earthquake on September 2, 1841. Although it never afterwards rose to its former importance, it was rebuilt in part, only to be destroyed again on May 4, 1910, when the newly constructed Pan-American Peace Palace was overthrown.

THE GOOD GIFT OF VOLCANOES

Lest the reader should close with the thought that these calamities render life and property too unsafe, be it understood that there are sometimes compensations. We all know that the annual flooding of the Nile in Egypt leaves a film of sediment over the valley and restores the soil for the next crop. Similarly, in Central America the volcanoes from time to time throw out a vitalizing dust that enriches the soil beyond the possibilities of costly fertilizers. Throughout the world, volcanic regions are ones of heavy population and great productiveness. There are losses—yes, but "out of death cometh forth life."

In the case of Guatemala City there are no compensating features, unless it be that this metropolis and diplomatic capital of Central America shall be rebuilt in a more modern and beautiful fashion. The city can hardly be removed to another site, since it is a railroad and commercial center, situated on the divide between the Atlantic and Pacific. Rebuilding has been slow because of the difficulty in obtaining materials, but, now that the Great War is ended, it should proceed apace.

THE ISLE OF CAPRI

An Imperial Residence and Probable Wireless Station of Ancient Rome

By John A. Kingman

IN NO part of Italy is the natural scenery more astonishing and delightful than in the Bay of Naples. The Italian travel literature of the last hundred and fifty years is rich in attempts to describe the picturesqueness of the district; but in the old days the tour usually ended at Naples, and by that time the fatigued diarists had pretty much run out of adjectives. Symonds, one of the best of the English writers on Italy, has done well by the locality; our Fenimore Cooper has written some agreeable bits about it, and the half-forgotten American poet, Willis, epitomized all descriptions when he called it a collection of beauties which seems more like a miracle than an accident of nature.

Owing to the striking contrasts caused by the meeting of mountains, sea, and mountain islands, much of the charm of the bay can be caught by the camera. The painter has little advantage over a machine which reproduces the sculptured forms exactly, whereas the colors and curious quality of the atmosphere are beyond both.

Many lovers of Italy feel that a country like Tuscany, with its softer colorings and gentler contours, is more restful and somehow more wholesome to live with, and that the Neapolitan scenery is too much like theater curtains come to life. Nevertheless, every person who arrives at Naples under fair skies and beholds this littoral for the first time cannot help being affected by its loveliness.

A SIREN LAND CHARGED WITH CLASSICAL MEMORIES

Many of the visitors feel something deeper than admiration; for them all of the coast scenery from Miseno to Salerno has a strange and lasting fascination. Then there are the siren worshipers who have heard the mystic song and are content to let body and soul rest here forever; and to such willing victims of the picturesque, Naples is not a noisy, nerve-racking modern city, full of beggars and rogues and fleas; it is the old "new city"—Neapolis.

In the Bay of Naples the very atmosphere, to such Neapolitan specialists, seems more bland and limpid than elsewhere on the peninsula, lending to the distances a more magical and haunting charm; the curving shore is picked out and decorated with countless beauties, and high mountains descend abruptly to a tideless sea streaked with color, in which are set ethereal lilac-tinted islands.

This southern Siren Land, in addition to its gorgeous aspect, is so charged through and through with classical memories that it has much of the glory of Greece and the grandeur of Rome. From this rare vintage is expressed a heady beverage esteemed by siren worshipers and lotus-eaters, numbers of whom have lived hereabout for generations and who have found a particularly choice place of residence on one of its fairest spots—the mountain island of Capri, the Capreæ of the great emperors, Augustus and Tiberius.

AN ESTHETIC WONDER OF THE WORLD

Viewed from Naples, Capri is a conspicuous object in the seascape twenty miles to the south. Its profile resembles the storm-tossed waves, or a sphinx, or a vast heap of clouds brooding at sea, or a sarcophagus, or a crocodile—depending on whether your viewpoint is that of Lord Byron, or Richter, or Willis, or Gregorovius, or Colonel Mackowen. Thus is seen the futility of description.

THE MOUNTAIN ISLAND OF CAPRI

From the vantage point of this Capri headland a magnificent panorama of the Bay of Naples and of the contiguous Campania is unfolded to the view of the visitor. Monte Solaro rises abruptly from the sea to a height of 1,980 feet.

PUNTA TRAGARA, THE SOUTHEASTERN PROMONTORY OF CAPRI, AND THE THREE PRECIPITOUS ROCKS KNOWN AS THE FARAGLIONI

The ruins of a Roman house were exhumed on this promontory thirty years ago. It is a relic of the days when the Emperor Tiberius erected twelve beautiful villas on the island in honor of the twelve Great Gods of Roman mythology.

Capri is an esthetic wonder of the world. Its area is but six square miles; but surely nowhere else in the world are so much loveliness and so many interesting things packed in so little space. Artists have always flocked to Capri, each year bringing a fresh brood, confident in its ability to paint the unpaintable cliffs and sea. Some of these lingered on, some to marry the handsome Capri girls; and Howell's Englishman who came to the island for three months and stayed for thirty years is not a unique case in this respect.

Capri has the odd reputation of making its foreign residents eccentric, and there are many strange tales told on the island of their peculiar behavior. It has always been rather noted for its queer characters and human flotsam and jetsam.

THE LURE OF THE GROTTO

The fame of the Blue Grotto has made Capri a show-place, and for upward of a hundred years, day after day, the tide of seasick tourists has flowed and ebbed. In spite of these daily caravans, however—in spite of the Anacapri Road, the Funicular Road, the Strada Krupp, much tasteless villa-building, and the vast hordes of Germans—Capri is still essentially unspoiled.

It is true that the Capri women gave up wearing their costume thirty years ago; that the old Greek forms have dropped out of the island speech; that the old days have gone forever; but, despite this, there has been a gain in convenience and comfort of living for both Capresi and Forestieri, even at a loss of picturesqueness; and the comforting fact remains that Capri's beauty is rugged and perennial, not to be destroyed by man.

After the murder of Julius Cæsar, in B. C. 44, there was confusion, civil war, until the battle of Actium produced a lasting peace and seated Augustus firmly on the throne. When Actium was won the future Emperor retired to the Island of Samos, and as a matter of pleasant association must have enjoyed island life ever after. In B. C. 29 he left Asia and returned to Italy, and before his three days' triumph at Rome visited Naples and near there heard Virgil read his Georgics. He also came to Capri and acquired it for a royal residence.

The statement in Suetonius that some withered oak branches came to life when Augustus landed, and that this so pleased him that he obtained the island, must be taken with the modern skeptic grain of salt. "The usual compliment to greatness," Mabie calls it.

Augustus, though doubtless as superstitious as any Roman, bought Capri because that was the object of his visit. These miraculous incidents have a way of happening all over Italy in all days and generations.

THE EMPEROR MAKES A DEAL IN ISLANDS

It is not known whether Augustus had visited the island before. The Roman historians merely say that he received Capri from Naples, in whose possession it had been for hundreds of years, and in return gave the larger and more fruitful island of Ischia.

Islands were in style at this time. But Ischia, perhaps, was discarded because of its reputation for eruptions of the volcano of Monte Epomeo, one of which occurred in B. C. 92; and there were probably earthquakes, too. Besides, Capri was more intimate and exclusive and more easily transformed into an imperial domain than the much larger and more thickly populated Ischia.

In the opinion of the writer, who spent the greater part of one spring browsing about the Roman ruins on Capri, the property was acquired as much for state reasons as for private ones. In the first place, it was an outlying island which probably needed protection—a strategic point, logically destined to become crown property. Undefended and neglected, it could be easily captured; but a small garrison could hold it against any attack. The island at that time was twenty feet higher out of the water and even more inaccessible than now.

PIRATES A PEST IN POMPEY'S DAY

Capri was the first point in Campania where the Greeks obtained a foothold, and Augustus possibly did a far-sighted thing by securing it for the Empire, thus preventing its seizure by enemies or by

THE WOMEN OF CAPRI NO LONGER WEAR THE PICTURESQUE NATIVE COSTUME

The attractive black lace veil is still seen occasionally, however. Frequently Grecian features are to be observed in the women, a reminder of their ancient ancestry (see text, page 216).

THE ROAD TO THE LANDING PLACE ON THE SOUTH SIDE OF CAPRI

Photographs by Edith P. Kingman

ON THE RUGGED PATH LEADING FROM THE VILLAGE OF CAPRI DOWN TO THE WORLD-FAMOUS BLUE GROTTO

The soles of the shoes worn by the natives of Capri are made of rope, as a precaution against slipping on the steep rocky slopes of which the island is in the main comprised.

Photograph by Edith P. Kingman

BOTH ROMAN AND MEDIEVAL RUINS COVER THE SUMMIT KNOWN AS THE CASTIGLIONE

Important excavations unearthed walls, pavements, and bas-reliefs of rare archæological value. A few years later the thrifty peasants covered the ruins with soil and planted vines over the spot where once stood the palace of an emperor.

pirates. There was certainly the matter of pirates to be considered. They have always been a pest of the Mediterranean. At the time of Pompey's celebrated campaign against the Mediterranean pirates, 67 B. C., they were well organized and intrenched; they had naval stations and beacon towers in various places. Centuries later the English actually did seize Capri, in 1806, and called it the "Little Gibraltar." They might have held it, perhaps, to this day but for the ill luck and incompetence of Colonel Hudson Lowe, later Napoleon's jailer at St. Helena.

The ruin of the Capri Pharos, the ancient lighthouse, so close to the largest of the ruined palaces on Capri, is a paramount point in the archæology of the island. The selection of Capri by Augustus was most likely biased to a considerable degree by the fact that it was ideally situated for the Pharos. This was one of the most important lighthouses of antiquity.

The limit of this article does not permit of any elaborate disquisition on Roman lighthouses, but enough information exists regarding them to show that they were permanent, costly structures and abundant, too, not merely in Italy, but also in Gaul and Britain.

PHAROS, ONE OF THE SEVEN WONDERS

The name Pharos comes from the enormous structure at Alexandria, built in B. C. 285, one of the seven wonders of the ancient world, and which stood until the thirteenth century. This lighthouse was very high, owing to the low coast; but the practical Romans, wherever possible, placed their beacons on commanding headlands and made them relatively short and massive. One of them, Tour d'Ordre, at Boulogne, on the French coast, is illustrated in an old print. It stood until the middle of the seventeenth century. This was probably typical—a strong masonry tower with a fire that was kept burning at the top.

As to details of design, the views that have come down to us, on medals, coins, reliefs, and Pompeian wall paintings, show a great variety of elevations.

Photograph by Edith P. Kingman

EAST OF THE SUMMIT OF MONTE SOLARO IS THIS FORMER HERMITAGE OF SANTA MARIA CITRELLA

Not far away are the extensive ruins of the Villa di Tiberio. "Imperious Cæsar, dead and turned to clay, might stop a hole to turn the wind away"; and the corridors and vaulted rooms of the once magnificent retreat of the mighty Tiberius are now used as sheds for the cows of the workaday Caprians.

The existing lower portion of the Capri structure is a mass of burned Roman brick, forty feet square and fifty feet high, sufficiently conspicuous to show in photographs taken from Monte Solaro, at the other end of the island, two miles away. Its original appearance is entirely problematical. It may have had two or three stories. The tower at Boulogne had several stories and was 200 feet high. The Capri tower was not any higher than this, and in all probability not so high, as the elevation of the headland is about one thousand feet above the sea. It is one of the most valuable and interesting ruins on the entire island.

THE ANCIENTS SIGNALED LONG DISTANCES

What right have we to assume that Capri was a signal station—an imperial wireless station of ancient Rome?

In the first place, we know that the ancients signaled in various ways and over long distances. They signaled by beacon fires, by beacon smoke, by pigeons, by flags, and by shouting from one sentinel to another.

Lighthouses are as old as the earliest chapters of the Bible. Beacon fires and beacon smoke were commonly used by the early Greeks, and there was no reason why the more practical Romans should not have employed improved methods, such as heliographing.

We do know that at the siege of Syracuse by Marcellus mirrors were employed by Archimedes; and though we may doubt the burning of vessels from shore by mirrors, as stated of that occasion, we can appreciate the blinding effect of many mirrors on the eyes of the navigators of the attacking vessels. That is what probably happened during that con-

Photograph by Edith P. Kingman

FISHING IS ONE OF THE PRINCIPAL OCCUPATIONS OF THE MEN OF CAPRI

Cultivation of the olive tree and of the vine are also profitable pursuits, but the inhabitants rely chiefly upon the annual tourists' crop for their livelihood.

flict. At any rate, it shows that the great Archimedes, at least, had found some use for mirrors other than the usual one.

THE USE OF MIRRORS BY THE ROMANS

In imperial times the Romans had mirrors large enough to reflect the entire person; they even had mirrors of glass backed with tin instead of quicksilver.

Although there are no references in ancient writings to the use of signaling by mirrors, such a simple and effective method surely must have been employed. A most significant thing is the old story of a mirror on the Alexandrian Pharos:

"Alexander the Great placed on the top of the tower a mirror constructed with so much art that by means of it he could see the fleets of his enemies at 100 leagues distance"; and, to enter still more into particulars, "a Greek named Sodorus, after the death of Alexander, broke the mirror while the garrison of the town was asleep."

Now any tradition, no matter how distorted, has its roots in truth; and this one leaves us with the feeling that there *was* a mirror on the tower. The most likely reason for its presence there is that it was used to signal with in daylight hours; in other words, it was used for heliographing.

Signaling was certainly a common military practice among the ancients, and ancient writers, such as Virgil, Æschylus, and Herodotus, frequently alluded to it.

CODE MESSAGES OF THE ANCIENTS

An interesting case of long-distance signaling by relaying is mentioned by Herodotus, in which it appears that certain tidings were sent to Xerxes in Asia by means of a line of beacon fires arranged through the Greek islands.

The ancients went further than sim-

THE ROCK-HEWN ROADWAYS OF CAPRI ZIGZAG SKYWARD AT DIZZY ANGLES

In ancient days the inhabitants were accustomed to mounting from one village to another by flights of steps.

Photograph by Edith P. Kingman

LIKE CLINGING IVY, VILLAS CLAMBER UP THE SIDES OF CAPRI'S ROCKY CLIFFS

The ancient home of the pleasure-loving Roman tyrant Tiberius is visited annually by 40,000 tourists in normal times.

ply announcing some prearranged message; they had codes and sent long messages. The Greeks signaled on one occasion 100 miles at one jump. This was from Mt. Chigri, 1,698 feet, to Mt. Athos, 6,500 feet.

The subject is one of absorbing interest, but little touched on by archæologists. Polybius, the Greek historian, has described ancient signaling methods in considerable detail, particularly an ingenious and elaborate method invented by Cleoxenus and Democlitus and perfected by Polybius himself.

Briefly, this method was about as follows, the letters of the alphabet being arranged on five boards:

A	F	K	P	U
B	G	L	Q	V
C	H	M	R	W
D	I	N	S	X
E	J	O	T	Z

To send any letter, such as H, the signaling party raised two torches, because H is in the second column. Next, three torches were raised, as H is the third letter in its column. Very briefly, this was the theory.

The system was effective at about ten miles, and, though designed for torches, it could be easily modified for mirror signaling, as it contains the fundamental principle of the best modern system of signaling.

If the Greeks could invent such a *theory* of communication, it would seem likely that the Romans, a century and a half later, could have perfected its *practice* by using mirrors. Even our American Indians, having mirrors, signaled with them extensively, both on the plains and in the Rockies, the chief frequently being enabled to direct his warriors with certainty from a distant point overlooking the field.

MIRROR SIGNALS SEEN AT A DISTANCE OF 160 MILES

Gallup's Hand Book of Military Signaling states that "under favorable conditions the distance to which messages may be sent and received is only limited by the curvature of the earth;" also, that "square mirrors are better than round ones only because they contain about one-quarter more reflecting surface for the same packing space." Round mirrors are used now. Mirror signals have been seen with the unassisted eye at distances of 160 miles. While this is, perhaps, a record, and although there is no statement as to the size of the mirror, it probably did not exceed twelve inches square.

The reasonableness of the Capri "wireless" station theory tempts one to speculate as to how much signaling was done and how it was done. It will be remembered that Tiberius, the unpopular successor of Augustus, spent eleven years of his reign on Capri, and without coming to Rome directed most successfully the affairs of the vast Empire. He even foiled the conspiracy of his trusted minister, Sejanus, who was supposed to have general charge of affairs after Tiberius retired to the island.

Though Tiberius went to Capri an old man, he was the actual ruler—emperor in fact—and his heavy hand was felt all over the Empire until the very end. With regular news bulletins and reports, received daily if need be, containing confidential information, he would be able to issue instructions and manage affairs as thoroughly as if he were in Rome.

BEACON FIRES BY NIGHT, MIRRORS BY DAY

Possibly the *Publica acta* (Senate Journal) and the *Diurna acta* (authorized news) were sent to Capri by signal instead of by messenger. We can conceive that such a system, organized most likely under Augustus, must have operated very smoothly after some years of experience and practice. I hazard the theory of mirrors because of its simplicity and convincing character. Signaling by beacon seems too primitive for the wonderful civilization of the Empire. Of course, at night-time beacon fires would have to be employed; mirror signaling was a fair-weather method.

It is not entirely clear how the Roman lighthouses were managed. If the early representations on coins and reliefs do not mislead us, we may imagine a squat tower on a headland, perhaps 100 feet high and perhaps twelve feet square on top, with fire blazing all over the top platform. How long would the resinous wood fire last? During the long hours of darkness? It would not burn that long.

Obviously, the fires must have consumed immense quantities of wood and been replenished at intervals throughout the night. In periods of storm and rain the operation of the Pharos must have been a trying task. Just how the fire was replenished is not very clear. The Capri Pharos appears to have been provided with an outside staircase by which billets of coniferous wood could be carried up and thrown on the fire.

ROMAN LIGHTHOUSES OPERATED EIGHT MONTHS OF THE YEAR

It is most improbable that any Roman lighthouse could have been operated throughout the entire year. It was kept alight during the passage of the grain fleets and possibly then allowed to go out. Navigation began in March and came to an end in November. According to Merivale, the sea was not used for one-third of the year.

A little island like Capri would be deforested in a short time, a year or two,

THE PUBLIC SQUARE OF THE VILLAGE OF CAPRI WHICH NESTLES AMONG THE ROCKS NEARLY 500 FEET ABOVE THE SEA

This is the center of life on the island. As its capital, the village has a population of four thousand.

OVERLOOKING THE ITALIAN COAST (CAMPANIA) FROM THE LIMESTONE CLIFFS OF CAPRI

A PICTURESQUE REMINDER OF THE FREQUENT VISITS OF PIRATES TO CAPRI IN OLDEN DAYS

Contrary to the custom of christening a castle after its builder, this historic pile, Castello de Barbarossa, bears the name of the freebooter who destroyed it in 1544.

with such a greedy Moloch swallowing untold cords of firewood every night. However, wood was a cheap commodity in the Empire. There were trackless forests all over it.

In England, and in fact everywhere on lighthouses, the exposed beacons of the ancients were used until recent times. The exposed "chauffer" type of beacon light burned, say, 400 tons of coal a year, in addition to vast quantities of wood. Coal fires were in use until 1816.

The mirror system would cost no money to operate, would be easy to use, and by it long signals could be sent. In times of stress, the primitive beacon would have to be employed when there was no sun. Under the practical rule of the Romans, beacon signaling was doubtless somewhat advanced and by it long signals could be sent, perhaps by making the beacon flare up by adding periodically small quantities of oil.

THE ROMANS EXCELLED IN ENGINEERING

This is a mere surmise, without basis other than the general advanced character of Roman civilization, which lacked little we have today. The Romans were not artistic, but they were wonderful mechanics, hydraulic engineers, sanitary engineers, and great builders of all kinds of structures and highways. They had water pumps. They had perfected shorthand writing. The old writers do not tell us very much of Roman culture. None of them mentions a certain famous surgical instrument found at Pompeii, but it is there just the same.

The distance in an air line between Rome and Capri is 130 miles—too long for direct signaling; but if we look along the coast of the Tyrrhenian Sea we find numerous mountains affording points where the signals could be relayed. The frequency of the relaying would depend on the conditions. The highest point on Capri is Monte Solaro, 1,980 feet. Signals were probably not sent from here, but from the eastern headland. The Pharos was about 1,000 feet above sea-level. A line drawn from the Pharos to Monte Circeo, on the Campanian coast, just grazes the Island of Ischia; but the line of sight would be well above the island, as the summit of Circeo is 1,775 feet.

RELAY STATIONS FOR MIRROR SIGNALING

On a clear day it is possible to stand on this storied summit and, facing north, see the dome of St. Peter's in Rome, and, turning to the south, see Ischia and Capri. "From the mountain promontory of Circe, now called Circeo or Circello, from almost any point on the Bay of Naples sufficiently elevated to get the sea horizon toward the west-northwest, we can see the high mass connected with the mainland by the Pontine marshes, whose low shores are invisible at this distance." There is a semaforo at Monte Circeo in actual operation today, just as there is also a semaforo on the "telegrafo" hill at Capri.

From Capri to Monte Circeo in an air line is 77 miles—a long shot for mirror signaling when we consider that the record for heliographing with the unassisted eye in America in modern times is 160 miles. Still it was not impossible with a large mirror in the clear air of ancient Italy. Probably also the vision of the ancients was exceedingly keen, and doubtless signaling was in the hands of those gifted with extraordinary powers of vision.

Nothing could have been easier than to increase the number of relay stations, although we may be sure the efficient Romans would signal over as long distances as possible.

TACITUS REFERS TO LONG-DISTANCE SIGNALING

A suggested line of stations with no range more than 44 miles long is submitted to those of a speculative turn of mind. Rome to Monte Cavo, in the Alban Mountains, 18 miles; thence to Monte Circeo, 39 miles; thence to Monte Massico, 44 miles; thence to Capri, 44 miles. A Pompeian fresco of quite recent discovery shows Monte Cavo as being very conspicuous when viewed from the Palatine Hill. The clear summit is boldly visible. Perhaps the Palatine Hill was the "sending" station in Rome.

THE SIREN ROCKS OF CAPRI

The city of Naples was originally called Parthenope, in honor of the siren of that name, who drowned herself because Ulysses, hero of the Trojan War, succeeded in eluding her fatal embrace by putting wax in his ears so that he could not hear her seductive song.

FOUR NATIVES OF CAPRI

The two in the doorway are waiting for an invitation to dance the tarantella, for which they will expect a half franc each from the spectators. The dog and the cat are quite content to be left alone.

When Tiberius retired to Capri he took with him, among others, the mathematician and astrologer, Thrasyllus, who would be an expert on optics, if there were any such at this time. Moreover, the Emperor was the greatest general of his time and would be intimately acquainted with long-distance signaling in its every detail.

There is a passage in Tacitus that refers to signaling from Rome to Capri. This is as follows: "Meanwhile he [Tiberius] was upon the watch from the summit of a lofty cliff for the signals which he had ordered to be made if anything occurred, lest the messengers should be tardy. Even when he had quite foiled the conspiracy of Sejanus, he was still haunted with fears and apprehensions, insomuch that he never once stirred out of the Villa Jovis for nine months."

Photograph by Edith P. Kingman

HIS PICTURE HANGS IN MANY GALLERIES

This sedate gentleman is not a painter, but the most famous artist's model of Capri.

Without undue effort of the imagination, we can picture Tiberius receiving the signals from Rome announcing the treachery of Sejanus, and we can sympathize with him in this final distress. Added to the enforced early separation from Vipsania, his first wife, a lifelong sorrow; the disgrace of Julia, his second wife; the death of his splendid son, Drusus, and other personal domestic afflictions—this final disappointment, the defection of his friend and trusted minister, must have come as a cruel blow to the old man.

The fact that Augustus and Tiberius made Capri their special retreat gives it a deep and lasting significance. The island was the favorite home of them and their families for nearly seventy years. They are the two greatest executives in history ruling consecutively—both clear-headed, hard-working administrators, whose labors established the supremacy of the Roman Empire and brought about a wonderful period of peace unequaled in history, before or since. They both lived long, full lives

WHEN TIBERIUS RULED THE WORLD FROM CAPRI, HOW DID HE GET DAILY NEWS OF THE HAPPENINGS AT ROME? THIS HEADLAND MAY BE THE ANSWER

Some archæologists and historians surmise that he learned of the treachery of his trusted minister, Sejanus, by "wireless"—heliographic signals received by the station erected on this promontory.

and died natural deaths in an age when murder or enforced suicide or violent death of some sort was the almost invariable end of greatness.

After these towering personalities, Capri drops out of history and for some reason does not seem to have been patronized further by the imperial family.

But though Capri was never revisited by the emperors, the Pharos still guided the precious grain fleets through the channel between the island and the mainland for many centuries.

SHANTUNG—CHINA'S HOLY LAND

By Charles K. Edmunds

President Canton Christian College

THE ancient Kingdom of Lu, now the Province of Shantung, is China's Holy Land. As the scene of many remarkable events in the early history of the people up to 200 B. C., and containing the highest of the five sacred mountains of China, which for two score centuries has been a great Mecca for devout pilgrims, this region would be justly famous. But it is particularly celebrated as the birthplace of Confucius and Mencius, philosophers and statesmen whose fame has gone over the earth.

In ascending the sacred mountain and in visiting the birthplace, temporary abodes, and the final resting place of Confucius, we are carried back to things hoary with age, and to the sources of the power that has so long held China in its grip.

The people of Shantung are, on the whole, rather conservative in their attitude toward foreigners and things foreign. The chief manufactures are strong fabrics of wild silk, ornaments of a vitreous substance like strass, snuff-bottles, cups, etc., straw braid, glass, and excellent rugs of many sorts.

The streets of Tsinan, the capital, are wider than in the south of China, where carts, and even barrows, are practically unknown. Here the deep ruts in the granite slabs of the street pavement indicate the stream of traffic that grinds along on squeaky wheels. The shops all open upon the street, the fronts being boarded up at night. The sign-boards, in colors gay and characters large, relieve the monotony of gray brick and uniform structure of the buildings.

A STRANGE FORM OF CRUELTY TO CRIMINALS

One of the most striking buildings which one sees shortly after leaving the railway depot at Tsinan is the new police station and jail. In most of the large cities of China today there has been a marked improvement in the police system and in the treatment of criminals. But on one occasion, along one of the main streets of the city, we saw three men exposed in a neck-stock or cangue which has long been used in China as an effective punishment for minor misdemeanors. The culprits stood day after day on a prominent street, exhibiting on the cangue their names and offenses.

H. E. Wu Ting Fang, formerly Chinese Minister to the United States, was charged on his return to China with the revision of the penal code, and the more cruel forms of punishment are not so frequent now as formerly. Nevertheless the accompanying illustration (page 233), secured in Tsinan, shows that the terrible method of cage-executions was still in use up to a few years ago. After several days of public exhibition and starvation in a wooden cage, the victim was strangled by the removal of the bricks from under his feet, so that he hung on the wooden frame about his neck. Sometimes a mass of quicklime was placed on the floor of the cage so that the victim's feet dangled in it.

Photograph by C. K. Edmunds

THE NECK-STOCK OR CANGUE WAS FORMERLY THE INSTRUMENT USED IN PUNISHMENT FOR MINOR MISDEMEANORS

Culprits were forced to stand day after day on a prominent thoroughfare with their names and the nature of their offenses displayed on the heavy wooden yoke.

If there were space, we would refer in more detail to other evidences of the change now under way in China, such as the rise of militarism and the rapid development of educational facilities, perhaps the most important and significant change of all. Tsinan boasts a large and flourishing provincial college and many lower schools. But the chief interest of our journey lies outside Tsinan.

CURBING "CHINA'S GREAT SORROW"

Only six miles away runs the Yellow River, known as "China's Great Sorrow," because of the frequent changes of its course and consequent flooding of this the most densely populated region of the whole country.

The last serious break in the dikes occurred in September, 1902, near Liu-Wang-Chuang, and the illustrations on pages 236-238 show the remarkable way in which Chinese "engineers" effected its repair. The original breach of 1,500 yards was reduced by building out from each side successive buttresses composed of kaoliang stalks (Barbados millet) and sacks of clay, each buttress being secured to the previous one by ropes and piles. The final opening of 55 feet was, after two disastrous attempts, effectively closed in March, 1903, by lowering a huge mattress of kaoliang stalks and clay by means of more than one hundred ropes, each eight inches in circumference, which at a given signal were let out one foot on each side.

The rush of water through the opening was reduced by the construction of a projecting groin on the upstream side, and to prevent canting of the mattress, due to the impact of the current, which had frustrated the earlier attempts, it was anchored to the opposite side of the river by many 15-inch hawsers.

The width of the river abreast of the

breach had been 600 feet, but was reduced to 300 feet by the formation of a sand-bar on the opposite side of the river. Hordes of workmen with baskets and barrows were set to work on the top of the dike bringing material to reinforce the repaired section.

THE EQUIPMENT OF A CARAVAN

From Tsinan our journey was ten days by cart over typical rough Chinese roads in a general southwesterly direction. Our party consisted of myself, a student-interpreter and recorder, a cook, and three carts (with carters whose bad behavior we shall not soon forget), in which food, tents, clothing, and bedding packed in huge baskets were carried, but in which we did not often ride, for the carts had no springs. For this reason also our surveying instruments were carried on the shoulders of two men, a third being supplied for relief.

This caravan advanced about 25 miles a day. After the first stage to Taian, we were accompanied by a military guard of two so-called soldiers, who were expected to keep the unruly carters in check, but who proved to be nearly as bad as they.

For the most part we lived on the country as we went. Sweet potatoes, egg-plant, cabbage, turnips, and carrots were easily secured. Good rice, such as we know it in south China, was scarce, but chickens and eggs, pork, persimmons, hard pears, a few peaches, and abundant dates, supplemented with a few tinned goods, enabled us to live sumptuously.

As a rule, we stopped at the regular village inns, crude and uncomfortable, but affording needed shelter for the whole party of eleven souls and three cart-mules.

The roads through this section of China are mostly ruts, which sometimes attain a depth of 70 feet in the loess deposits. For a good part of our way the road lay along the bank of a wide, shallow river cutting across the loess formation. To judge from the height of bridges and the markings on the land, the tributaries to this stream, although dry when we saw them, must be violent torrents during the rainy season.

Photograph by C. K. Edmunds

THE EXECUTION-CAGE IN WHICH A CONDEMNED CHINAMAN IS STRANGLED TO DEATH

Not to be confused with the cangue, or neck-stock (see page 232), this instrument of torture takes the place of Western civilization's gallows, electric chair, and guillotine. The victim, standing on a pile of bricks, is placed on exhibition with his head through a wooden collar. Day by day a brick is removed until the culprit is starved and strangled to death. Frequently there is an added refinement of torture in causing the man's feet to dangle in quicklime.

Photograph by C. K. Edmunds

A DEVIL SCREEN TO KEEP AWAY EVIL SPIRITS

Chinese "devils," or evil spirits, unlike the more clever foreign variety, can only travel in straight lines. Hence the rich property-owner puts up a devil screen to keep them out just as a photographer makes a box light-proof because the rays don't like to turn dark corners. This blank wall lends itself to decoration of various kinds and soon the open space in front fills up with rickshas or itinerant barbers. Pneumatic-tired rickshas have now almost driven out the old iron-tired variety. While superstition is still rife in China, a rapid development of educational facilities is in evidence in Shantung.

This is the most densely populated region of the whole country. Villages are very numerous and they are wonderfully alike. Even the smaller hamlets have a grocery shop or so, and most of the larger villages have temples. Most of the temples have ancient trees in their courtyards, and tablets recording restorations in the reigns of various emperors from about 1500 A. D. down.

PLOWS DRAWN BY OXEN, DONKEYS, AND WOMEN

We found most frequent restorations made by the famous monarch Chien Lung, who reigned for sixty years in the middle of the eighteenth century.

The village street is usually a streak of deep black mud. Outside the villages the roads are stony or sandy, as the nature of the land decrees.

The level and gently sloping parts of the country are closely cultivated. Farmers plough in the field with three donkeys abreast, or two donkeys and an ox, or a donkey, an ox, and a woman! The hills are generally very barren, owing to the ruthless cutting of all timber and the long-continued raking of the ground for leaves and grubbing of the soil for roots, the great population being sore pressed for fuel.

This process has robbed the soil of a natural fertilizer and lessened its ability to retain water, so that the hillsides are the more rapidly made bare and the stream beds raised, thus contributing to a chronic condition of floods and famine.

The chief products of the region are peanuts, sweet potatoes, straw braid, and peanut oil, many loads of which passed us on their way to the rail end at Tsinan, on huge barrows with very squeaky wheels, always pushed by one man, sometimes pulled by a second, while in case of an excessive load the man-power was assisted by a small burro.

After two days of heavy carting, about noon of the third day, we sighted the pagoda, which stands as a sentinel guard-

Drawn by R. M. Parker

SKETCH MAP OF SHANTUNG, CHINA'S HOLY LAND

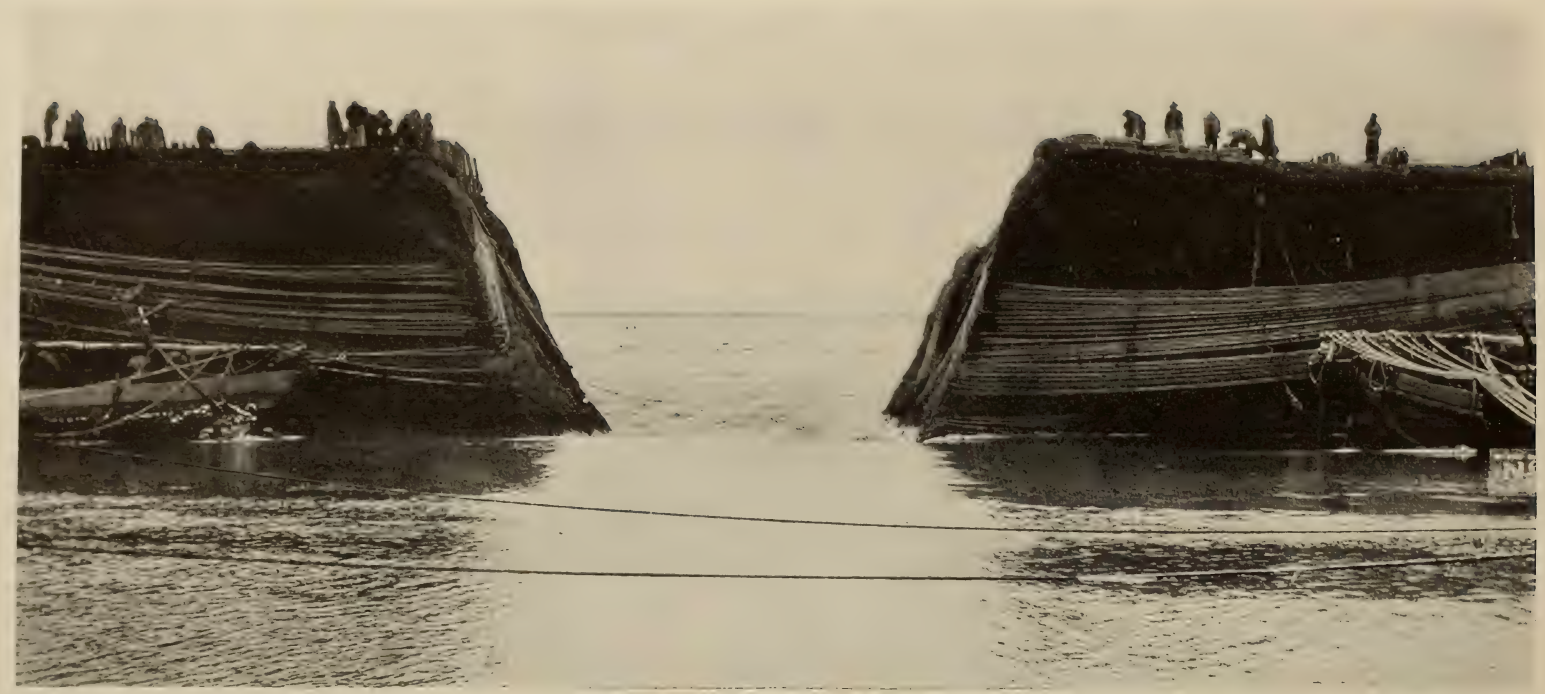
The area in black is the territory of Kiaochow, to the west and beyond the limits of which is the town of the same name.

ing this approach to the city of Taian, at the foot of Tai Shan. Taian can now be reached by rail, on the line running from Tientsin to Pukow, on the left bank of the Yangtze opposite Nanking.

According to Chinese records, Tai Shan was the "Holy Mountain of the East" and was visited and prayed to as a god by the patriarchs and monarchs of the hoariest ages. Certainly its sacredness was a well-established doctrine in the earliest historical times. It is mentioned in the Shu King (Book of History) as where Shun sacrificed to heaven B. C. 2254. It is accordingly celebrated for its historical as well as its religious associations. The monarch was supposed to visit it every five years, or at any rate once in his reign.

The ascent in the early days must have been far more arduous than it has since become. Probably only the most active potentates ventured to pay their devotions at the summit. The redoubtable Ch'in Shih-huang, builder of the Great Wall and unifier of China, did so 200 B. C., and left two obelisks to commemorate the fact, one at the top and one at the bottom of the mountain.

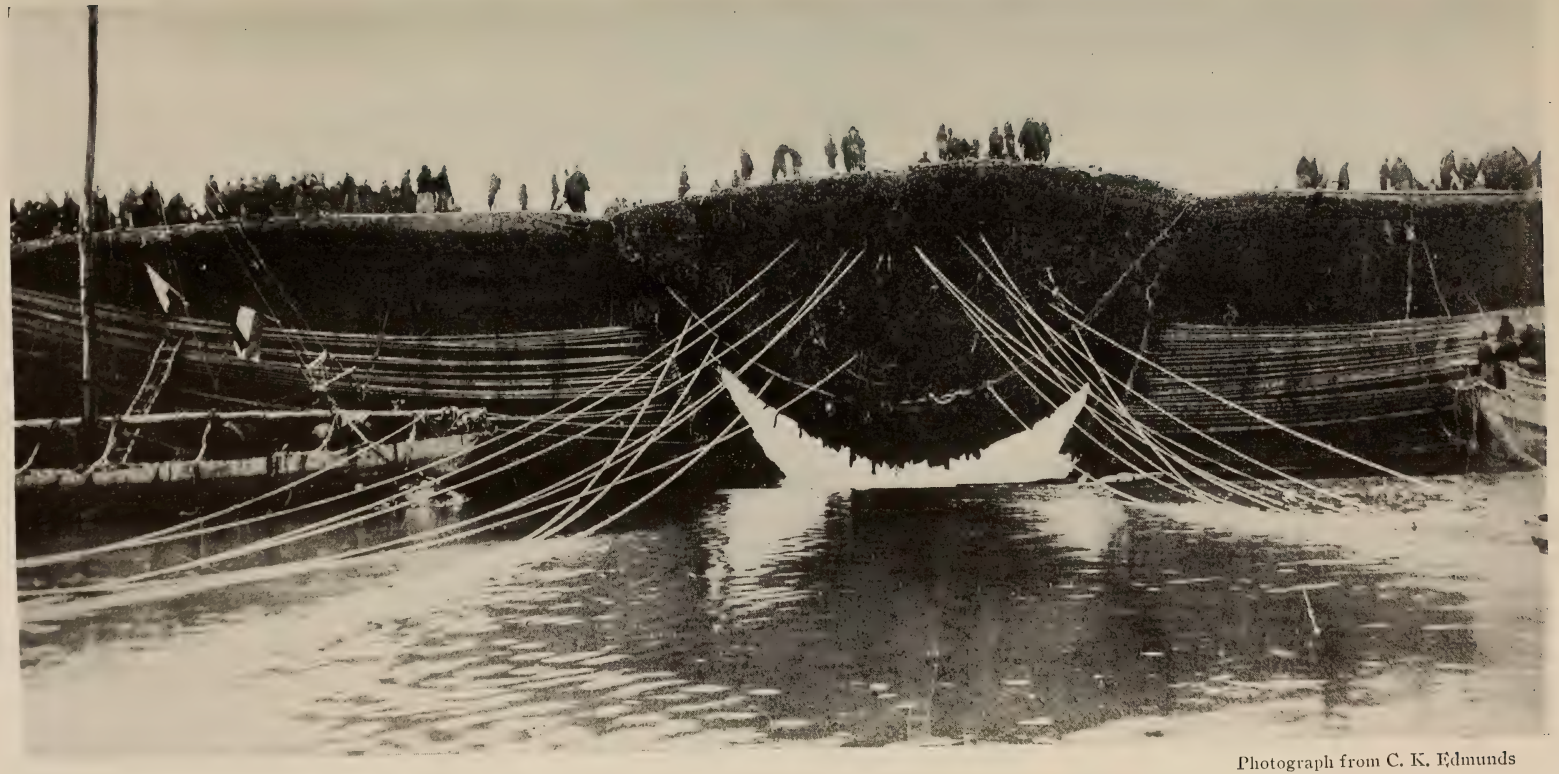
A hundred years after Ch'in Shih-huang, the Emperor Han Wu-ti planted cypress trees a few yards to the east of



Photograph from C. K. Edmunds

NATIVE ENGINEERS DIRECTING SHANTUNG COOLIES IN CURBING THE YELLOW FLOOD OF "CHINA'S GREAT SORROW"

The last serious breach in the dikes, which in normal times control the waters of the Hwang-ho, occurred in September, 1902, near Liu-Wang-Chuang, and was 1,500 yards wide. Through it most of the river flowed. It was repaired by building out from each side dams in the form of a series of pakwerks of kaoliang stalks and sacks of clay, each pakwerk or buttress being joined to the previous one by ropes and piles. By this means the breach was reduced to 55 feet, and this, after two destructive attempts in which the lives of many workmen were lost, was effectively closed on March 16, 1903 (see illustration on opposite page), when a huge mattress was successfully swung into position. This turned the turbulent waters back into their proper channel. The rush through the opening was previously reduced by the construction of a deflecting groin on the up-river side of the breach, constructed like the pakwerk, and projecting some 120 feet into the current. The width of the river channel abreast of the breach had been 600 feet, but was reduced to 300 feet by the formation of a sand bank on the opposite side of the river.



Photograph from C. K. Edmunds

LOWERING INTO PLACE THE LAST MATTRESS OF KAOLIANG STALKS AND SACKS OF CLAY WHICH FINALLY FORCED THE YELLOW RIVER BACK INTO ITS BANKS AFTER THE DEVASTATING FLOOD IN 1902 (SEE PRECEDING PAGE)

Before being lowered into the gap, the last gigantic mattress was anchored to the side of the river by many 15-inch hawsers, in order to prevent canting due to impact of the current. More than one hundred 8-inch ropes spaced closely were stretched across the breach and made fast to anchor piles. On these were then placed alternate layers of kaoliang stalks and sacks of clay. When these materials reached the level of the sides of the dam, the ropes were manned and, at a given signal, were lowered foot by foot. The kaoliang of which the mattress was made is a kind of sorghum, probably identical with Barbados millet. The core of the stalk, except for a very thin and weak covering, is entirely pith, but it has a matted bunch of fairly hard and strong roots which form its chief virtue for construction work. The stalk is about 6 feet long, three-fourths of an inch in diameter, and the bunch of roots, 3 to 5 inches in diameter. The face of the pakwerk, including the sides, is composed of the roots which mat and make a splendid surface for keeping out water.

Photograph from C. K. Edmunds

A TRAGIC ANT-HEAP OF INDUSTRY: TENS OF THOUSANDS OF COOLIES LABORING TO CHECK THE DESTRUCTIVE TANTRUMS OF THE YELLOW RIVER

After the breach in the dikes had been repaired (see pages 236 and 237), this army of workers was employed in rushing material to the danger point and reinforcing the embankment.

Photograph by C. K. Edmunds

THE TRANQUIL LOWER REACHES OF THE YELLOW RIVER AS IT CROSSES SHANTUNG

"China's Great Sorrow," this remarkable waterway has been justly called, for it has taken millions of lives as toll in its numerous floods and erratic changes of course. Once in a single week it swung its mouth southward a distance of 400 miles, emptying into the Yellow Sea instead of the Gulf of Pechili, as formerly.

this lower obelisk and built or rebuilt a temple there, the nucleus or forerunner of the present temple Tai Miao, which in its turn is the nucleus of Taian city.

WHERE BUDDHIST, TAOIST, AND CONFUCIAN MEET

The principal business of this "very religious" city is to cater to the whims and wants of the thousands of pilgrims who annually throng her streets. Everything is on sale from little yellow mud tigers to portraits of the "Mother of Heaven" and fine brass works and silks.

Tai Miao is the "great temple" which has grown up since the time of the Cæsars, and probably has been mostly rebuilt toward the end of the Sung Dynasty (1020 - 1120 A. D.) to accommodate the large number who, though coming to worship at the Holy Mountain, are unable to make the ascent.

Passing the ferocious doorguards, we traverse the main hall of the temple, on the walls of which are fine, large frescoes representing a horde of officials and gentry making a pilgrimage to Tai Shan, and enter the inner shrine to behold the image of the "Goddess of Mercy."

Leaving the city by the north gate and journeying about a mile across the plain, we see Tai Shan towering high above all other peaks in the range, as if keeping solitary watch over the country roundabout. On its slopes every sect, Buddhist, Taoist, and Confucian, has its temples and its priests practicing manifold superstitions to attract pilgrims to their shrines. The number of beggars who beset the road to the summit indicates the great crowds of

Photograph by C. D. Jameson

TAMPING THE LAYERS OF EARTH ON NEW DIKE WORK ALONG THE YELLOW RIVER

A circular disk of iron or stone, about eighteen inches in diameter and from two to two and one-half inches thick, is attached to some ten pieces of rope with a man on each rope. With a song to keep the laborers in time, the disk is thrown into the air and falls with a most efficient thud. Piles of from four to six inches in diameter are often driven in this manner, the weight being slightly guided in its fall by one of the men.

pilgrims whose offerings support such a vast and wretched throng.

TEN THOUSAND PILGRIMS A DAY

The great pilgrimages occur in February and March, as many as 10,000 persons per day making the ascent. The contributions of the faithful, even after deducting a good slice for the local authorities, not only provide the upkeep of the numerous buildings scattered from base to summit and of the far more numerous priests, but have sufficed for the construction and maintenance of one of the most remarkable mountain roads in the world, the Pan Lu, which, beginning just outside the north gate of the city, winds up to the very summit, some six miles of a broad, evenly paved pathway, the steep parts, which are frequent, since it rises 4,700 feet in five miles, consisting of well-laid steps, of which there are some 6,600 in all.

Every few hundred yards in the lower part is a temple, the most prominent being known as "Little Tai Shan," chiefly patronized by old women and young girls who can go no farther. Another of these lower temples is known as "The Hall of Ten Thousand Fairies" and another as "The Place of Thanksgiving."

All the way up, one is struck with the great number of inscriptions cut in the face of prominent rocks, sometimes in the most inaccessible places. These have been done at the instigation of pilgrims, who thus vie with each other in exhibiting their devotion.

All along the names given to special spots are very picturesque. The whole road is called "The Broad Way to Heaven." An especially large projecting boulder has its title cut deep in it, "The Pillar Supporting the Left Side of Heaven."

At one place, where the mountain stream has smoothed a broad, flat rock, are cut large characters, expressing prayers of the devoted. At another place, where the stream plunges over a high wall of rock, the latter bears the quotation from the classics, "A running brook is clear in itself."

For some distance the mountain slopes on each side of the paved way are fairly covered with trees, cypresses mostly up to 3,000 feet, cedars above that level. The upper part of the ascent is very steep and begins at an arch called the "Stopping Horse Arch" and mounts past the "Upper Gate of Heaven" to the last eighteen flights, along the sides of which heavy iron chains are hung for the use of pilgrims who reach this stage exhausted from their previous toils.

On the sides of the gulch appear inscriptions directing the pilgrims to "Enter gradually the Better Place" and "Cautiously approach the Region of Beauty." At the very top is the inscription, "Ten thousand generations adoring."

AT THE TOP OF THE MOUNTAIN

These eighteen flights end in a massive portal which gives entrance to the court of the middle temple group. We note the highly ornamented roof of the central pavilion, the huge bronze urn for the burning of written prayers, and the tall bronze tablet commemorating the visit of the Emperor Wan-li.

Besides the chief shrine to the Buddhist "Nurse or Mother of Heaven," there are two other temple groups at the summit, one to Confucius, containing a replica of the large image of the Sage which we shall see in the temple at Küfu, where he was born, while on the very topmost knoll is one to the Taoist "Emperor of the Sky," Yu-Huang.

The view from the summit is wonderful, but not so wonderful as the reach of vision ascribed to Confucius and Yentzu on their visit two dozen centuries ago. That they saw the sea, as claimed, is not unlikely, for from an elevation of 5,100 feet the horizon is some 85 miles in radius, and the sea even now is only 100 miles away, but the strain on our credulity comes when we are told that Yentzu spied what he took to be a white silk curtain and something blue in front of it by the gates of Soochow. "No," said Confucius, "that is a white horse, and the thing that looks blue in the distance is a bundle of beans." "So great," adds the commentator, "was the holy perspicuity of the Sage."

Great, indeed! for Soochow is a full 400 miles away in a straight line.

STONES THAT ACT AS TALISMANS

In all the cities and villages of Shantung, and even in adjacent provinces, stones from Tai Shan are much in demand as talismans. It is believed to be unlucky for a house to be so built as to face a turning or a cross-road. To ward off evil spirits, stones from Tai Shan are inserted in the wall of the house so situated, with the inscription, "A stone from Tai Shan. Who dares come this way?"

Evidently the day of leisure which our carters had enjoyed while we visited the Holy Mountain had spoiled them, for on resuming our journey they gave no end of trouble, until at last we were forced to present them to a district magistrate for reprimand and discharge.

After that we proceeded on foot, with a convoy of carrying coolies, straight to Tsining, on the Grand Canal, where through the magistrate we hired a cart and an excellent pair of mules with a well-behaved driver, who carried us to Küfu, the birth and burial place of Confucius, and back in three days by way of Yenchow.

On the road in the early morning we passed long lines of pack-donkeys, carrying grain and tobacco, and merchants riding to the markets on the backs of diminutive burros, accompanied by their attendants on foot.

In crossing the Wen-ho by a granite causeway we saw a number of fishing nets operated in characteristic Chinese fashion.

We reached Küfu in mid-afternoon,

Photograph by Richard M. Vanderburgh

WHERE THE ASCENT OF TAI SHAN BEGINS

Like the Japanese Fujiyama, Tai Shan is the favored shrine of millions. During February and March nearly two thousand people to the mile may be using the paved road that leads to the summit from the city wall of Taian. Some pilgrims are carried to the heights in native chairs, while others, old and bent, but determined to reach the summit through their own exertions, fight heat and hardship and fatigue to reach the prize they seek—a pilgrimage to the sacred mountain where the Emperor Shan worshiped two thousand years before Christ and nearly fifteen hundred years before Confucius was born.

and, having sent ahead our military guard to secure guides for the temple and cemetery, we lost no time (although we did lose considerable money in gratuities) in seeing the wonders of this prototype of all Confucian temples throughout the realm.

When one has seen one temple in China, one has seen them all, but when one has seen all the temples in China, there is still the temple at Küfu to see. The buildings and arches are much the same as any other similar edifice, and there are doubtless larger temples, but there is a certain air of respectability, a certain atmosphere inherited from the past, that makes a deep impression on the observer.

The approach to the temple is made along a wide avenue at right angles to the axis of the temple grounds, being in fact a section of the main street of the city, treeless and shut in on both sides by high walls.

Within the gates, one's attention is first called to the small forest of stone tablets, five to ten feet high and three or four feet wide, which line the pathway, commemorative of imperial visits.

The buildings stand in a park of splendid cypress trees, one of which, said to have been planted by Confucius himself, has its ancient roots carefully inclosed in a marble parapet, and from its twisted stump a tall and vigorous stem, itself some centuries old, projects straight aloft to proclaim that the old root has sap and life in it even yet. As such it seems to typify or foreshadow a revival of that which is the most vital and worthy in the philosophy and teaching of the Sage.

HOW THE VENERATION FOR CONFUCIUS GREW

This Confucian temple, an enormous and magnificent place, occupying with its grounds the whole of one side of the town, is the model of the Confucian temples found in all the cities of China. It is almost certainly the growth of ages.

The probabilities seem to be that, though the family revered the tablets of

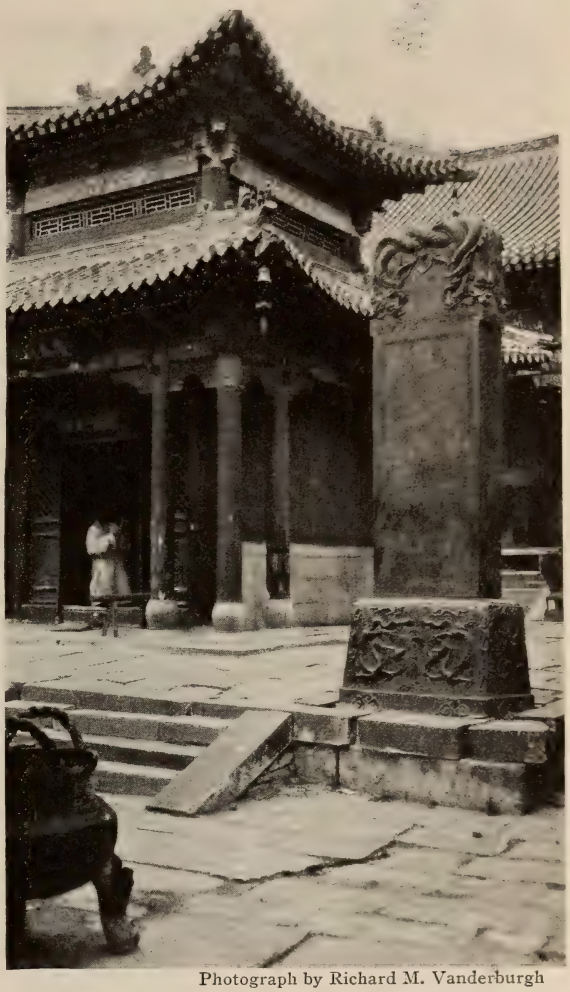
their great ancestor from the first, there was no public veneration of Confucius in any State temple for several centuries. As Confucian doctrines gained more and more recognition, no doubt a temple was erected near the birthplace of the Sage, and successive emperors, granting ever higher titles of dignity, no doubt enlarged and beautified the edifice.

There was a rather complete restoration of the old buildings in the reign of Yung Cheng (1723-1736), from which time most of the present establishment probably dates.

The main temple building stands on a terrace in the center of the grounds. The outer extremities of the high carved roof are supported by great stone pillars about fifteen feet high, ten on each side of the building.

The pillars at the front are round and magnificently carved with immense dragons coiling around each pillar. They are perhaps the most remarkable feature of the whole temple. We often carve in marble, but here are columns eight feet in circumference, some centuries old, carved four inches deep in solid granite. They constitute a real marvel of Chinese sculpture. The marble stairs and ramps leading to the shrines are also finely done.

The pillars on the sides and rear are octagonal and trace-carved in the favorite cloud effect with various figures.



Photograph by Richard M. Vanderburgh

A SOLID BRONZE TABLET IN A TAI SHAN TEMPLE

All along the Pan Lu, the great paved highway from the north gate of the city of Taian to the summit of the Sacred Mountain, six miles in length, there is an almost unbroken avenue of temples. The mountain is a Mecca for the Chinese of three faiths.

Within the main building, called "The Hall of Perfection," sits the canopied image of the great Sage, of which there are not more than two or three duplicates throughout the Empire. Ordinarily, Confucian temples do not contain an image of the Sage, but a simple tablet before which veneration and devotions are expressed.

The Chinese are masters in fine carving and decoration, and their execution in this case corresponds well with the imperial rank and honors ascribed to the Sage. The size and beauty of the altar and shrine are imposing and in keeping with the dimensions and character of the building in which they are the center of interest. All is heavily lacquered and richly gilded. Handsome silk hangings serve the double purpose of ornamentation and protection.

The statue itself is of wood, larger than life size, and represents the Sage seated, holding in his hands the imperial tablet or scepter as a symbol of his sov-

Photograph by Richard M. Vanderburgh

THE WAY OF THE DEVOUT CHINESE PILGRIM, WHETHER HE BE BUDDHIST, TAOIST, OR FOLLOWER OF CONFUCIUS, IS UP THESE FLIGHTS OF STEPS TO THE SUMMIT OF TAI SHAN

In a climb of five miles the pilgrim makes an ascent of 4,700 feet, by means of 6,600 steps on a well-paved highway. To get an idea of the exertion which such a climb entails, recall that there are only 900 steps in the Washington Monument.

TEMPLES NEAR THE SUMMIT OF TAI SHAN

The contributions of the faithful who make the pilgrimage to the "Holy Mountain of the East" by the hundreds of thousands each year not only provide for the upkeep of the numerous buildings scattered from the base to the summit, but have sufficed for the construction of one of the most remarkable mountain roads in the world, the Pan Lu.

Photographs by Richard M. Vanderburgh

THE TOP OF THE MOUNT

Tai Shan was a sacred mountain for centuries before Confucius was born, in 551 B. C. Probably the great Sage marks the half-way stage on the long road that Father Time has trod since Tai Shan was first a scene of worship.

Photograph by C. K. Edmunds

THE PAGODA WHICH STANDS AS A SENTINEL GUARDING THE APPROACH TO THE CITY OF TAIAN, AT THE FOOT OF TAI SHAN

ereignty in the realm of thought. He wears an imperial hat of ceremony decorated with twelve tassels of red and green silk ornamented with pearls and representing the signs of the zodiac.

NINE GARMENTS OF SILK FOR CONFUCIUS' STATUE

He is clothed in nine different silk garments, on which the twelve imperial emblems are embroidered, namely, sun, moon, stars, mountains, dragons, pheasants, altar-vessels, water-lilies, flames of fire, rice, axes, and classic characters. While nine of these were used for great princes, as well as emperors, the first three were exclusively imperial insignia. Thus is denoted the high rank with which Confucius has long been honored.

In front of the image of the Sage are handsome lacquer tables carrying the various sacrificial vessels of priceless porcelain and bronze used in the rather elaborate ritual. Below the richly decorated beams supporting the temple roof hang numerous inscriptions done in gold on blue, black on gold, and gold on red.

The decorations and enameling on the beams and pillars of the temple are exceedingly fine and rival in richness the decorations of the temple of the "Auspicious Year," at Peking, which is some-

Photograph by Richard M. Vanderburgh

THE GROVE SURROUNDING THE CONFUCIUS TOMB IN KÜFU

The buildings of the temple at the birthplace of the wisest of China's wise men stand in a park of splendid cypress trees.

times wrongly called "The Temple of Heaven."

On either side and facing the center of the room are the images of sixteen of the Sage's most famous disciples, all canopied, and in receding rows of two, three, and three, eight on a side.

One large room of the temple contains a very complete collection of ancient musical instruments.

The terrace on which the main building stands is flanked by two long rows of lower buildings, in which are tablets to Confucius' principal disciples and expounders. To the rear of the main building are also smaller buildings, one of which contains some 120 stone tablets, about 12 by 17 inches, cut to represent scenes from the life of the Sage.

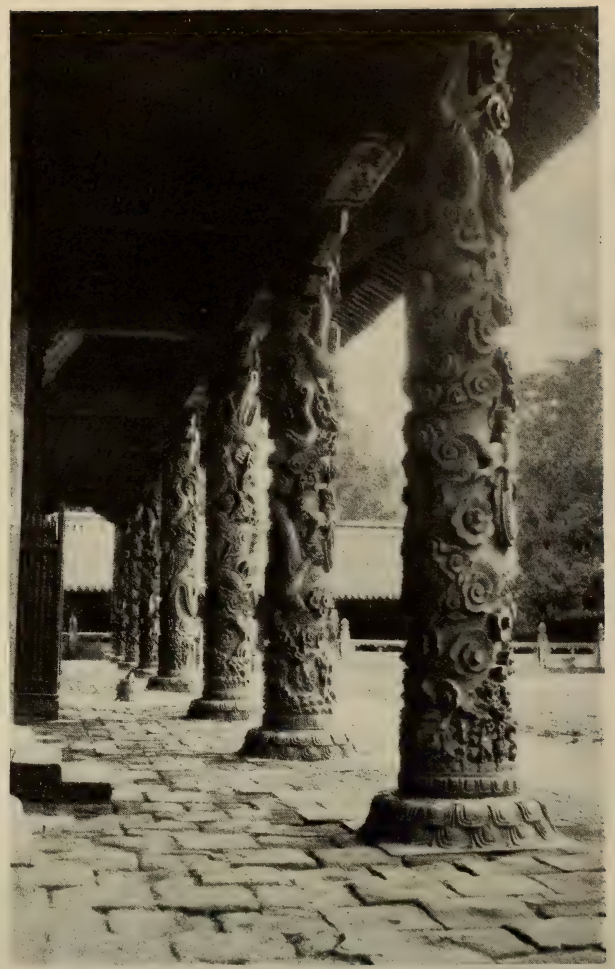
A SHRINE TO CONFUCIUS' WIFE

The building which is of chief interest among the auxiliary shrines contains the tablet to the wife of Confucius. This simple and sole memorial to the Sage's spouse is housed in a "Palace of Rest" in the midst of beautiful trees. Whenever offerings are placed on the altar before the statue of Confucius, so are they also before this tablet to his wife, only they are less elaborate.

The temple grounds are separated from the rest of the town by the street that marks the site of the ancient village in which Confucius was born, the actual site of the house itself being marked by the Duke's Palace, for there is still a duke in Lu, the Holy Duke K'ung, the seventy-sixth lineal descendant of the Sage.

Four times a year the Duke worships in this temple with the appropriate ritual. Besides the contributions from devotees and appropriations from Peking, estates of many acres are devoted to the support of the temple and the supply of the great number of pigs, sheep, and cattle required for the sacrifices, for no symbolism of cheap paper images as substitutes for the real article, so common elsewhere in China, is allowed here.

The Duke is also in charge of the upkeep of the great Confucian cemetery, which lies outside the city, and having



Photographs by Richard M. Vanderburgh

THE STONE PILLARS OF THE CONFUCIAN TEMPLE AT KÜFU

The most remarkable feature of the magnificent edifice in the birthplace of China's great Sage is the series of granite columns, fifteen feet high and eight feet in circumference, upon which are carved immense coiling dragons. They constitute a real marvel of Chinese sculpture (see text, page 243).

paid our respects to him and, by virtue of a considerable fee to his subordinates, having obtained permission to visit this ancient burying ground, we go from the north gate of the city for about a mile along a wide avenue lined with cypress trees.

We pass a striking archway erected to the memory of a virtuous widow by her family, who took advantage of the extraordinary publicity of this avenue to secure for their beloved extra recognition.

WHERE THOUSANDS OF THE PHILOSOPHER'S DESCENDANTS ARE BURIED

The portal to Sheng-ling, built in its present form in 1755 by the seventy-first lineal descendant of Confucius, gives access to a park-like enclosure of over 500 acres, containing the sepulcher of the Sage and of all his descendants. The total is undoubtedly several tens of thousands of graves. When a family holds together for 2,500 years, it grows into a big concern—about 70 per cent of the population in these parts, even the soldiers sent as escorts, claiming membership in the clan. The park is cared for by 200 attendants, whose families have inherited this duty for many hundreds of years.

From the outer entrance of the "Grove of the True Sage" an avenue of fine and ancient cypresses, about 150 on a side, leads to an inner inclosure, where are halls for worship and monuments of imperial visits from the Sung Dynasty down. There are some fine archways, and the buildings are not to be despised, but the really striking feature of the whole place is the splendor of the ancient trees.

As one passes inward the monuments become more and more ancient. The aspects of the park are rather those of age than of neglect. Presently we come to "The Holy Way," closed in by walls like "The Emperor's Way" from one palace building to another, thus denoting the imperial ranking of the Sage.

WHERE CONFUCIUS AND HIS SON SLEEP

Finally, in very nearly the center of the whole inclosure, we come to two hillocks that cover the remains of Confucius and his son. In front of each is a simple stone altar and an inscribed pillar, the one before that of the Sage himself reading "Most Holy Ancient Teacher."

It is said that the earth forming the mound covering the body of Confucius has been brought from each of the eighteen provinces of the Empire. However that may be, it is certainly true that the influence of the Sage has been and still is felt throughout the whole extent of the great country; and the prophet himself, while in these latter radical days somewhat dusty, still bears on his shoulders the vast commonwealth of China, whose moral basis, with all its deficiencies, is surely a great memorial to a great and wonderful man.

Besides the Confucian temple and cemetery at Küfu, there are sanctuaries in honor of Yentzu, the favorite disciple and companion of the Sage, and in honor of Chou Kung, founder of the Duchy of Lu. Also seventeen miles south of Küfu lies Tsowhsien, where Mencius, the great expounder of Confucius, was born (B. C. 361), and there we find suitable temples in his honor and proper preservation of his grave. But space does not permit a more detailed reference to these, nor in comparison with the memorials of Confucius are they of any considerable value.

Evening shadows had already overtaken us because of our long delay before the shrine of the wisest of the wise men of China, and in order to make sure of accomplishing our return journey to Tsining in one day, we made an early morning start from Küfu and by 9 o'clock had reached Yenchow.

THE GRAND CANAL, BEGUN 2,500 YEARS AGO

By dint of hard traveling during the rest of the day, we reached Tsining, on the Grand Canal, at nightfall, and found to our delight that a good missionary there had already arranged for the hire of a roomy house-boat on which to make the descent of the canal, though, to judge by the looks of the sail, it would take us a long time to go the 500 miles to the Yangtze; but we did cover that distance in about fifteen days, the last stage being made by steam-launch.

HOUSE-BOATS AND CARGO-BOATS ON THE GRAND CANAL: CHINA

Once the Grand Canal was a nine hundred mile highway over which the tribute of an empire was borne to the capital at Peking. Then came coast steamers and railways, and the Grand Canal, silting up from year to year, lost much of its former glory. But in China, wind-power on small sails is cheap and the man-power at the heavy oars is little dearer, so an American corporation is soon to begin dredging the Grand Canal.

Photographs by C. D. Jameson

NO DONKEY ENGINES OR ELECTRIC TRAMS TO OPERATE THE LOCKS OR TOW VESSELS ON THE GRAND CANAL

The natives, young and old, male and female, take their places at the heavy stone-set capstans. A boat is seen almost through the gates of a lock.

Photograph by C. D. Jameson

ONE OF THE LOCKS OF THE GRAND CANAL NEAR TSINGKIANGPU, IN THE PROVINCE OF KIANGSU

The fall from one side to the other is some five feet, and the boats are pulled up the rise by many ropes carried by capstans on each bank. A house-boat is floating through the gates. The central section of the Grand Canal, although it is now paralleled by the Tientsin-Pukow Railway, which makes possible a thirty-seven hour service between Shanghai and Peking, is largely used by the Chinese, who, through their peculiar skill as oarsmen, move heavy cargo-boats with a minimum of effort.

The Grand Canal, called in Chinese Yü-ho (Imperial River), Yün-ho (Transport River), or Yuliang-ho (Tribute-bearing River), extends from Tientsin, in Chihli, to Hangchow, in Chekiang, a distance of about 1,000 miles. According to the best accounts, it was commenced in the sixth century B. C. and finished only in A. D. 1283.

The most ancient part is the central section, between the Yangtze and the Hwai rivers. The southern section, from Hangchow to Chinkiang, on the Yangtze, was constructed from A. D. 605 to 617. The northern and most recent section, extending from the old bed of the Yellow River to Tientsin, was completed by the Emperor Shitsu in the three years 1280-1283 A. D.

Our journey on the canal began in the northern section, which is the most difficult to navigate; traversed the central part, where water is plentiful, and ended in the southern section, where we were again in rail connection with Shanghai, which had been our starting point two months before.

The chief features of interest were two: the locks and their operation and the variety of traffic and craft on this ancient inland waterway, which, originally completed as an easy route for grain transport to Peking, still plays an important local rôle for a very thickly populated part of the country, though of late years most of the supplies for Peking have been forwarded by sea.

HOW THE LOCKS OF THE GRAND CANAL OPERATE

In the northern part, owing to scarcity of water, frequent locks or dams are necessary and are passed with difficulty. The ordinary canal lock consists of heavy granite bastions, forming a gateway and carrying on their opposing faces deep grooves, in which are set heavy timbers to form a dam.

These timbers are raised by means of heavy stone-set capstans.

Photograph by C. K. Edmunds

DUKE KUNG, THE SEVENTY-SIXTH DESCENDANT OF CONFUCIUS

In charge of the temple and cemetery at Küfu. Four times a year the Duke worships in the great temple with appropriate ritual (see text, page 247).

The lock officials often keep long lines of boats waiting behind a closed lock by making daily promises to open, but delaying day after day in the hopes of securing additional "inducements." Such congestion was always relieved by the arrival of our boat, because we carried official orders for control of the locks.

In its central and southern portions the Grand Canal, although badly kept up, is much more utilized, and several thousands of boats traffic on it. Of late years the development of launch-trains, composed of a steam-launch towing several double-decked barges for passengers and freight, has been extensive between such important places as Tsingkiangpu, Yangchow, Chinkiang, Soochow, and Hangchow.

THE PEOPLE OF CHINA THEIR OWN BEST MONUMENT

Our return to the wonderful foreign municipality of Shanghai suddenly awakened us from the spell which our visit to southwestern Shantung, China's Holy Land, had put upon us. And yet, in coming back from a region where evidences hoary with age reveal the power that has so long held China in its grip to a modern city whose very existence testifies to the industry and energy of this ancient and honorable people, we appreciated the fact that the Chinese, as the only people who have survived from a remote past, are their own best monument.

Whether or not the earth which covers the mortal remains of their great Sage has really been brought from the then eighteen provinces of the Empire, it is true that in these latter days this Sage of old still holds sway throughout the land, and it is an interesting fact that the renaissance of China today is in China's thought closely associated with that teacher whose face at that remote period was toward the more ancient of the ancients, in imitation of whom he saw his country's only hope.

It is, therefore, natural that in 1913 the President of the Republic should have attempted to establish the new nationalism by appealing to the people's loyalty to Confucius and things Confucian.

THE DESCENDANTS OF CONFUCIUS

By Maynard Owen Williams

Author of "Russia's Orphan Races," "Between Massacres in Van," etc.

DAINTY Miss America motors her way to the Country Club dance, her tresses held in place by an unobtrusive yet effective net made of human hair.

To her this is one of the new necessities that appear as if by magic and help her to preserve her beauty for an appreciative audience. To thousands of rosy-cheeked, raven-haired maidens of far Shantung the making of hair nets from the discarded queues of their brothers is their only means of livelihood.

The almost invisible net serves fashion to preserve for another hour the loveliness of a moment. But the making of hair nets enables whole villages of wrinkled old women of Shantung to put a little more food into ever-hungry stomachs.

The dictates of fashion say that the net must be as fine as spider web and much stronger, yet the hair from which the net is made is the coarsest hair that grows on human head. Miss America insists on absolute cleanliness, yet those nets are woven in a thousand smoky huts. Every modern scientific process is utilized to fit the product of unwashed workers for the vanity dresser of the most fastidious beauty.

"Know thyself," says Dame Nature to the world's people, "and nothing is impossible. Shantung and Miami Beach are sisters."

AMERICAN FASHIONS FEED FRUGAL CHINESE

When the speedy roadster made hair nets a necessity, the hunger pressure in a remote province of 30,000,000 relented a little.

When the American male emerged from the woolen of former convention and donned the dapper suit of cool pongee, all the silkworms in Shantung had to work overtime, and their masters added a strip of pork to the family dish. A pongee-clad crowd at Bar Harbor means a better-fed population in Weihaiwei.

An American woman wears some Chefoo lace, and, thanks to her and the purchases of her friends, almond-eyed girls are being trained in mission schools 8,000 miles away.

The doughboy back from the war is also a booster for Shantung, though perhaps he doesn't know it. As he tells of the ever-smiling Chinese whom he saw making roads in France, he testifies to the fine qualities of some of the world's best laborers.

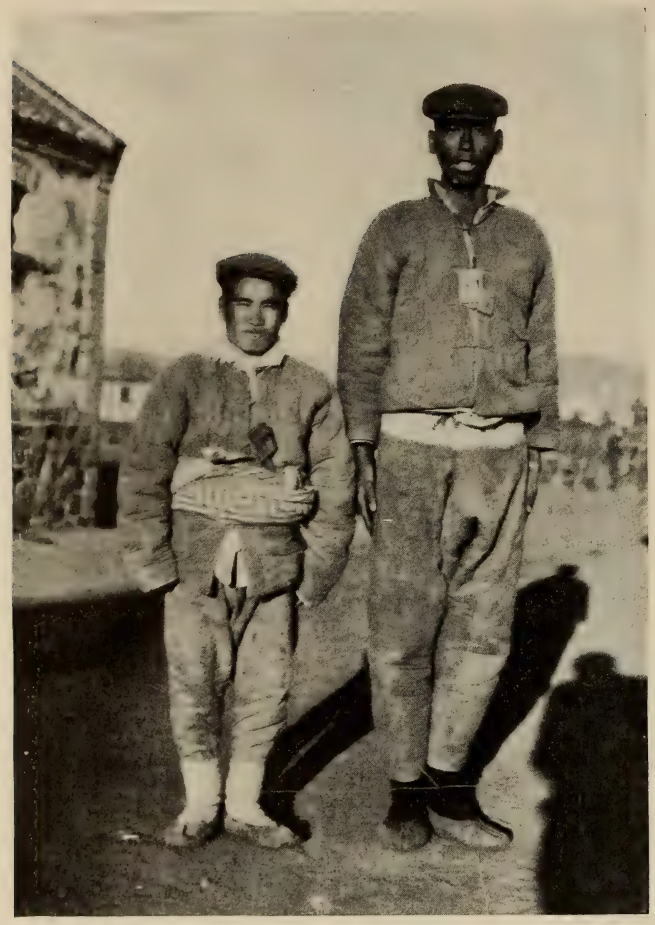
HOW THE SHANTUNG COOLIE DID HIS SHARE OF WAR WORK

The Shantung coolie did his fair share of war work. A hundred and fifty thousand of him went out to better living conditions and a wider outlook when the British troopships steamed away from his peninsular home. Hundreds of him dropped shovel and seized gun or fought with clubs and axes when the breach at Château-Thierry yawned.

Now some of those Shantung coolies are being returned to their homes with new thoughts and ideals, speaking Pidgin-French, Pidgin-English, and what-not, but with wonderful tales to tell of the men by whose sides they fought.

I saw them there in Tsinan and Tsingtau—a bit cocky over their supply of ready cash, addicted beyond conversion to the cinema, but straighter, cleaner, and more alert than they were before. When China wants railways built or canals dug, here are the boys who showed the best Allied engineers what loyal labor really was.

Nor will they have to wait long. An American corporation is only waiting for better transportation facilities before beginning to dredge once more the Grand Canal, which was binding China into an empire two centuries before the Great



Photograph from Lieut. Richard M. Vanderburgh

EXTREMES LABOR SIDE BY SIDE IN SHANTUNG

"How big is a Chinaman?" is a frequent question. "How big is an American?" is a common answer. The Shantung coolie is usually tall and well built, trained down to fighting weight, slim-waisted and barrel-chested, although his awkward costume conceals the latter excellence.

Wall began to shut out the rest of the world and 400 years before the birth in a Bethlehem manger of Him who was to affect China in a degree second only to Shantung's great Sage. Christ—Confucius! They divide the thoughts of the Shantung population today.

The Grand Canal cuts across the very base of Shantung. But the pressure of population and the urge of the empty stomach have made the strapping big fellows of that province ever ready to migrate to any point where the clink of hard coin gives promise of a full dinner pail.

When 30,000,000 people whose idea of a day's work is 16 hours are crowded into a province the size of Iowa, there must either be industrial development in silk, lace, and hair or periodic migrations of labor to less thickly settled parts of the world.

In summer the Shantung coolie is north along the Amur mining gold or harvesting soy beans in Manchuria. I have seen him carrying Harbin flour aboard the Sungari steamers, and he laid hundreds of miles of ties on the Trans-Siberian. I have seen him juggling gaily-painted sticks at the Nijni Novgorod fair, and companies of Shantung coolies fought for the Bolsheviks beside the Kremlin and against them near Tchita. In ruined Van a Shantung coolie, heavily dressed against the bitter cold of the Armenian plateau, rolled into town ahead of twenty of his compatriots who brought flour to that starving city.

FRANCE-TRAINED COOLIE TO BUILD HOME RAILWAYS

Soon the Japanese will be laying the rails for their new railway concession from Kaomi, near Tsingtau, to Hsuchowfu, whence a Trans-Asiatic trunk line, which will be to the Trans-Siberian what the Union Pacific is to the Canadian Pacific, is some day to link Lanchow and Kashgar with Peking and Russian Turkestan. Another Japanese line will run from Tsinan to cut the Peking-Canton line at Shuntehfu.

In building these railways the Shantung coolie will have his rightful place, and skill gained in France will stand him in good stead in linking his home province to the capitals of Eurasia from Madrid to Tsinan.

Photograph by Lieut. Richard M. Vanderburgh

SHANTUNG COOLIES FOR FRANCE

"Man-power!" shouted Europe; and Shantung answered with 150,000 coolies who knew no fatigue and who did intelligently and industriously the simple but essential tasks that they were given to do. Now there is talk of a quarter million more Shantung coolies to help restore France.

The rivers of China have built strange elements into the character of the sons of Han. In the gorges of the Yangtze there is the humble tracker, the human tug, who conquers rapids by the power of naked thigh. Through his heart-breaking toil at the woven bamboo cable, huge Szechuan junks are made to breast the flood and a million horse-power of Himalaya's snows are triumphed over again and again by puny man.

THE TANTRUMS OF THE HWANG-HO

But the Yangtze below the gorges is a tame and steady stream. Its mood may vary, but it never runs amuck. The Hwang-ho, or Yellow River, on the other hand, is the champion bucking broncho river of the world. It hurdles its banks, spreads death and desolation in its track, and commandeers Red Cross workers with a suddenness of passion that cannot be foreseen.

While the Crusaders were fighting in Palestine, the Hwang-ho emptied into the Gulf of Pechili, near Tientsin. Then it swung its mouth southward 400 miles in a single week, and until 1852 emptied its yellow flood into the Yellow Sea. Then it had another tantrum—hurdled the whole promontory of Shantung and found its present outlet, facing Port Arthur.

Today it is the constant menace to millions of people who live in what may be its next river-bed. It is confined to its present course by huge dikes that tower above a million homes. The Shantung coolie has for centuries set the example for the little Dutch lad of the story-book, who stuck his finger in the fissure in the dike and thus saved his country.

The old Hwang-ho goes mad every few years and lashes a million innocents with his swishing tail, but the Shantung coolie, like a modern St. George, enters the lists against the foamy-mouthed dragon and once more confines it within earthen embankments. Yellow River and yellow man—and the man ultimately wins.

Then he goes back to growing three crops every two years in an impoverished soil that has been cultivated for centuries and forces Nature to support as many Shantung farmers to the square mile as

Photograph by Lieut. Richard M. Vanderburgh

SOLDIERS OF MENIAL SERVICE IN FRANCE

In ancient Phœnicia the mountains repelled and the fine harbors of the Syrian coast invited the men of Tyre and Sidon to become sailors and traders. In Shantung the ever-hungry stomach drives men to any corner of the globe where honest labor and hard coin can come to an understanding. Chinese coolies who have learned to sit down in companies of five hundred and be well fed are never going to be the same men who toiled sixteen hours a day for a mere pittance. Chinese man-power is waking up.

CHINA HAS ITS SIDEWALK RESTAURANTS, TOO, BUT NOT OF THE CAFÉ DE LA PAIX TYPE

When an American woman buys a Chinese hair net, or an American man a summer suit whose pongee has been spun by Shantung silkworms, a family in the province known as China's Holy Land adds a strip of pork to the day's menu.

Photograph by C. D. Jameson

A BASKET MADE OF BANDS OF STRAW BRAID TO HOLD SOY BEANS

The bands, about eighteen inches in width, are wound round and round in a spiral from the bottom up, the bottom edge of the band being on the inside of the top edge of the band below, which overlaps it some four or six inches. This huge basket is filled with beans as it is built, thus holding the bands in place.

A CHINESE BUREAU OF STANDARDS

Although to the visitor the Chinese seem careless in their standards of measurement or weight, the shoe is usually on the other foot. Until recently, even the silver bullion which served as currency was weighed and the seller bargained around until he discovered the most friendly steelyards. The Chinese steelyard is not steel at all, but is made of some heavy wood, with the weights marked with small silver or steel points which are inlaid with great care.

Photograph by C. D. Jameson

A BOAT WITH WHICH THE CRAFTY CHINESE FISHERMAN MAKES THE FISH CATCH ITSELF

Attached to the long, narrow canoe is a thin board, painted white, one edge floating in the water. On calm, bright moonlight nights the canoe is swung out into the river across the line of an advancing school of fish. The man sits quietly waiting and the fish, dashing at the white board glistening in the moonlight, land in the canoe.

pre-war Belgium supported through highly developed industry. Does such a territory offer asylum to the Japanese? With such a man as the Shantung coolie, the Japanese farmer simply can't compete.

TSINGTAU, CHINA'S ATLANTIC CITY

Shantung is a land of villages, but it has its big modern towns as well. Tsingtau and Tsinan are two of the most rapidly changing cities in the world. Germany laid their foundations. Japan is rushing them to completion.

Tsingtau is the Atlantic City of the China coast. Its climate is excellent, its golf courses are well constructed, and it boasts modern hotels, miles of the finest motor roads, and clean streets.

Behind it stretches a background of charming hills, where the scrap-iron and smashed cement of German forts spell the downfall of German military power and where millions of trees testify to German skill in battling against one of China's most serious problems.

Were China's countless hills clothed in such forests as form the lovely setting

Photograph by Maynard Owen Williams

ALL "SHIP-SHAPE" ON SOME CHINESE JUNKS

Thanks to the excellence of Chinese varnish, which resists hot and cold, fresh or salt water without discoloration, the Chinese houseboats or junks are models of cleanliness. From far Szechuan to the network of waterways around Shanghai, the Chinese houseboat is a floating credit to the by no means spotless towns.

for Tsingtau's fine homes, the Yellow River would purr instead of roar, and flood and famine would be banished forever from the land.

When the Japanese captured Kiaochow, they made, as one of the conditions of its return to China, the granting of a Japanese concession in the port of Tsingtau.

During the war the Japanese built a new city upon low land surrounding the magnificent inner harbor of Tsingtau. In it the custom-house, the railway station, several harbors, and numerous industrial plants are now located.

Germany developed a show-place at Tsingtau—a political and naval base in the Far East. Japan is fashioning there a beehive of industrial activity, having constructed scores of permanent buildings in the concession which she, from the first, demanded as her price of returning Shantung to China.

JAPAN'S INTENSIVE EFFORTS IN DEVELOPING SHANTUNG

Tsinan has undergone similar transformation. A Chinese city with a German veneer has overnight become an outpost of Japan. The Japanese population in the overcrowded Province of Shantung has increased 6,000 per cent in five years.

New buildings and barracks, guarded by stocky young men wearing the uniform of Japan, have sprung up as if by magic. One of the most powerful wireless stations in the Far East has been installed. During the 21 years since our purchase of the Philippines, the United States has not expended there as much money as poor Japan invested in Shan-

Photograph by C. D. Jameson

ONE OF THE SLUICES OF THE GRAND CANAL

Notice the fisherman with his large net in the foreground.

Photograph by C. K. Edmunds

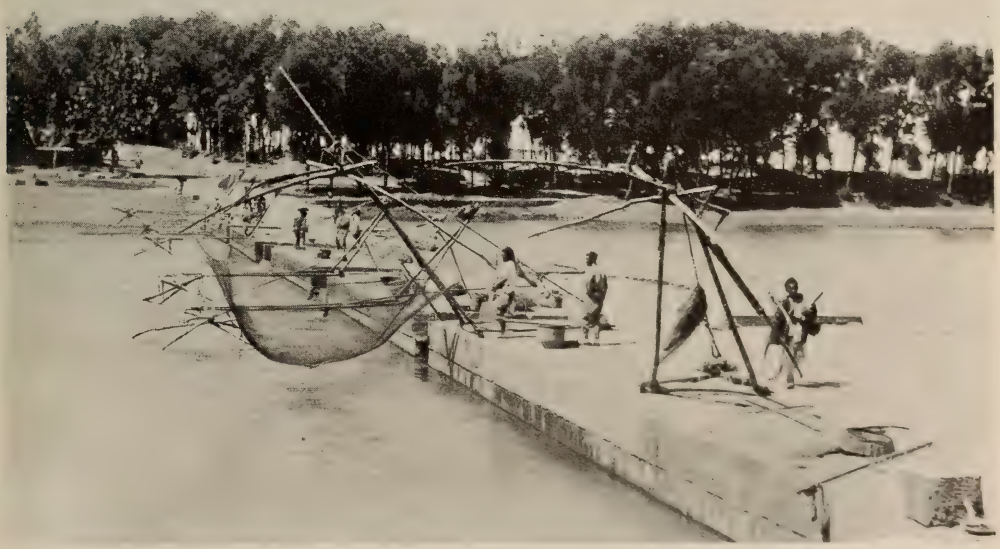
THE MAN ON THE TOW PATH AND AT THE OAR IS THE CHIEF DEPENDENCE OF THE CHINESE JUNK WHEN THE WIND BLOWS UNPROPITIOUSLY ON CHINESE RIVERS

The Grand Canal, China's great artificial inland waterway, was begun in the sixth century before the Christian era, but was not completed until the end of the thirteenth century.

Photograph by C. D. Jameson

A FORM OF FISH NET IN USE THROUGHOUT CHINA

The frame works on a hinge at the crossed uprights in the water. The long arm running to the right is raised and the net sinks below the surface to a suitable depth. When the fisherman who works the long arm feels that he has reason to think that some foolish fishes are over the net, he pulls down the arm, raises the net, and with a small scoop net lands any fish caught. About nine times out of ten there are no fish caught.



Photograph by C. K. Edmunds

FISHING IN THE WEN-HO

The highway from Yenchow to Küfu crosses the river by means of this broad stone causeway, in which several arched openings permit the passage of the stream and afford the Chinese disciples of Walton facilities to enjoy the sport to their hearts' and stomachs' content.

Photograph from H. T. Kelsh

CHINESE REFRIGERATOR CARS

The transportation service is not especially rapid, but in many parts of China live pigs are shipped in this manner. A boatload of fat porkers encased in wicker baskets floating down one of China's traffic-teeming rivers is a familiar sight and an ear-splitting sound.

CHINESE MANDARINS UNDER THE OLD REGIME

Contrast with these silk-clad officials of a few years ago the sturdy coolies who were China's contribution to the war and who are to be the bone in sinew of the new republic.

ON THE ROAD TO THE MING TOMBS

Filial piety and ancestor worship divide with the ethical systems of great sages the loyalty of the people. Nearly every religion has taught man to honor his father and his mother, and in China the emperors of the illustrious Ming Dynasty are honored to as great a degree as is Confucius. The famous Ming Tombs north of Peking are visited yearly by hundreds of tourists who do not make the effort to see the equally impressive Confucian temple at Küfu, near which, in the shade of the cypresses he loved, China's great teacher lies buried.

tung before the war was over and the Shantung decision made. New extensions to Tsinan are being rushed to completion, and the old walled city, like the intramural city of Jerusalem, is becoming quite dwarfed by the modern settlement that has sprung up all around it.

BANDITS TERRORIZE CHINA'S HOLY LAND

During the past three years Shantung has suffered seriously from banditry and the buying up of copper *cash,* which forms the currency of the poor.

Various forms of money have been used in Shantung for 3,000 years. At first these coins took the form of a knife, and reproductions of this early money are now used as paper knives in many foreign homes in China.

Other shapes resembled axes and spades, but in the Chou dynasty, about 600 B. C., round coins were introduced. These round *cash,* with a square hole or several round ones in the face of them, proved much more convenient than the older and more bulky coins in the shape of knives and axes.

But the old coins for some time remained the standard and the new coins bore inscriptions showing that their value was one "knife-coin" or one "axe-coin," as the case might be.

When war sent the price of brass and copper soaring, thousands of tons of these copper and brass coins were melted down, thus robbing the country of its medium of exchange, and the exportation of *cash* was forbidden.

In China, however, the foreigner takes large liberties, and smelters soon sprang up in Tsinan and Tsingtau, to which long lines of creaking wheelbarrows, heavily laden with coins, were pushed by sweating coolies.

THE LUSCIOUS FRUITS OF SHANTUNG'S MARKET BASKET

To the visiting foreigner Shantung offers excellent fruit and vegetables, many of which have been introduced by Christian missionaries. The average Chinese pear is better suited for ammunition than for food and tastes like a cure for a canker sore, but a Shantung pear of the improved variety oozes lusciousness as readily and irresponsibly as does an American Bartlett.

The peanuts and persimmons of Shantung are famous, and Chefoo cabbages are sold throughout the Far East. The Chinese "date," which is truly a species of jujube, is produced in large quantities in Shantung and can be had in almost any chop-suey palace in America, although whole mule loads of this dried fruit are carried westward to the Chinese epicures of Shensi and Shansi.

SHANTUNG A VAST RESERVOIR OF LABOR

The Shantung farmer or coolie is a stalwart, slow-thinking, but by no means stupid fellow, slow to anger and slow to forgive. His life is that of patient toil with Nature, who has often proved a fickle mistress.

He lacks the ready wit of the trader and the militant qualities of the soldier; but he is the finest human machine in the world. He is adaptable and he attains great skill in doing a simple task well.

As a vast reservoir of potentially high-grade labor and as a way-station on what promises to become a new world highway, Shantung toils on unconscious of her fate and power, waiting for the day to dawn when her many millions will find sufficient food for their stomachs and the peace which above all else the industrious Chinaman covets.

The Shantung coolie on the western front has made good. Another quarter million are expected to be recruited in that province for reconstruction work in France, and American-trained Chinese are planning to teach these laborers several modern courses, including phonetic spelling that may be learned in one month.

War and politics have forced the Shantung coolie into the limelight. He smiles, toils, and watches the life around him. No problem has balked him yet. With his salvage and reconstruction tasks in France completed, he may be expected to return to his home, take one look at the Yellow River, which he has so often tamed, and then start in to clean up China and bind it by bands of steel and crowded waterways into a worthy republic.

THE FITA-FITAS ON PARADE IN FULL-DRESS UNIFORM OF WHITE UNDERSHIRT AND KILTIES

This is the Samoan variation of khaki and brass buttons which sets the heart of the vivacious native belle in a flutter. "Oh, listen to the band" is the most popular pastime among the natives of our South Sea Island possessions. By the patient effort of an American naval instructor, this military brass band has been taught to play, and the organization now makes itself heard on all occasions. Every steamer from the States brings a consignment of popular music, which is awaited with an eagerness comparable only to the interest which people of other climes evince in Paris modes.

AMERICA'S SOUTH SEA SOLDIERS

By Lorena MacIntyre Quinn

WHEN thinking of the insular possessions of the United States, we are apt to lose sight of the fact that our flag flies over a group of six tiny islands in the South Seas, comprising what is known as American Samoa. Here our government maintains a naval station, on the Island of Tutuila, at Pago Pago, one of the finest and safest harbors in the South Seas.

In these troubled times it is well to remember the strategic value of the naval station at Pago Pago, "with its magnificent harbor and its situation at the crossroads of the Pacific trade routes from North America to Australia and from Panama and South America to the Orient."

The harbor occupies the crater of an extinct volcano and is one and one-half miles in length and three-fourths of a mile wide. The entrance to the harbor from the sea is a very narrow channel. The steep mountains, covered to the highest peaks with coconut palms and greens, seem to embrace the villages on the shores and protect them from severe tropical storms.

It was over these islands that our first difficulties with Germany occurred, in 1888. Overzealous local officials made the rivalry more intense, and each home government sent ships of war to the scene. The situation was growing critical, when a storm destroyed the two fleets. After this the points at issue were adjusted and an agreement was signed in Berlin that provided a hybrid form of government for the islands.

AMERICA'S SOLDIERS WHO WEAR KILTS

Under this arrangement the Samoan group continued to make trouble until, in 1899, they were divided by a new treaty, which gave each side what it wanted—Germany, a colony; the United States, a coaling station.

Early in the World War, German Samoa was captured by the New Zealand troops, and thereby England acquired a rich colony.

American Samoa is under the supervision of the Navy Department of the United States. The naval officers stationed at Pago Pago form the governing body of Tutuila and the five other small islands. The yeomen among the bluejackets are valuable office assistants.

The Fita-Fitas,* as the native soldiers are called, constitute an important unit in the government of American Samoa.

It would be hard to find a more picturesque body of men than these, our South Sea Island soldiers. Tall, broad-shouldered, handsome in features, possessing splendid poise, they are admirable types of their race.

Their fatigue uniform consists of a sort of black kilt with a bright red stripe around the border. Above the waist and below the knees the uniform is "Nature's own."

A leather belt carrying a dagger on the side holds the kilt or *lava-lava* in place. A bright red turban is the head-dress.

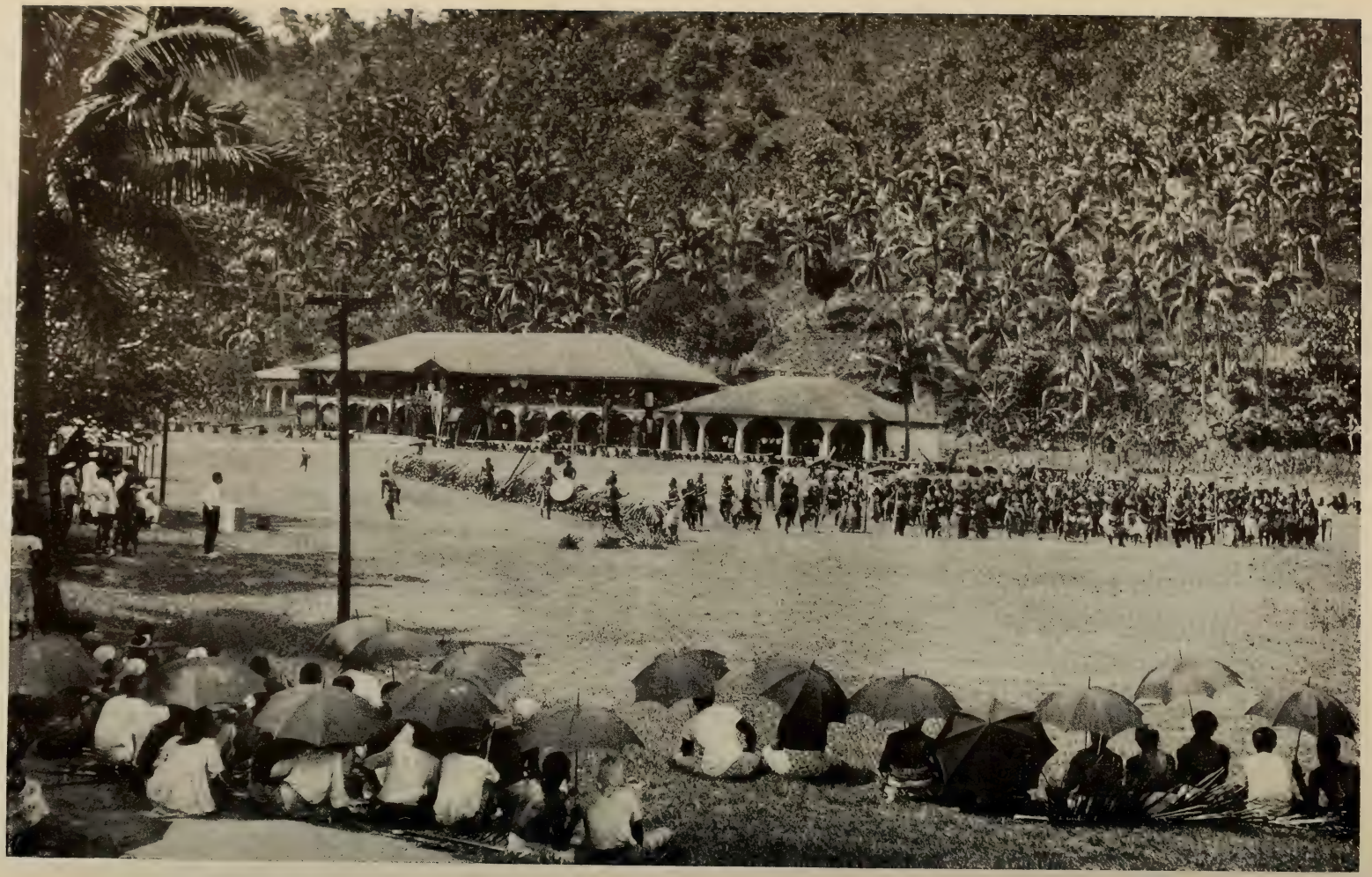
For dress uniform the Fita-Fitas wear with the *lava-lava* a sleeveless white undervest, similar to the X.Y.Z. or A.B.C. garments graphically described in the advertising sections of magazines.

TOO MUCH UNIFORM, SOLDIERS TOOK COLD

When the native soldiers were first taken into the service of the United States, a less abbreviated and more conventional uniform was provided them, with the result that they were constantly suffering from colds; so there was a wise reversion to a uniform on the lines of their native dress.

The Fita-Fitas have municipal as well as military duties. They act as policemen in and about Pago Pago, guard all prisoners in the Pago Pago jail, and frequently are called upon to settle fights at

*Pronounced Feeta-Feeta.



A LAWN FETE IN SAMOA—EXCEPT THAT AMERICA'S SOUTH SEA ISLAND WARDS DON'T CALL IT THAT

Tutuila, the principal island of the American group, has an area about equal to that of the District of Columbia and a population of six thousand. While the pleasure-loving Samoans are unrestricted by the government in the pursuit of their native pastimes, the game of cricket has become "the rage." Instead of the regulation eleven players to a side, the Samoans frequently employ forty or fifty, thus giving every one a chance to participate.

THE WHEREWITHAL FOR A SAMOAN FEAST

The natives have had to seek abroad for the meat to satisfy their modern appetites, as the islands have an extremely limited fauna—a few birds, a few snakes, and a rat. All other animals had to be imported. The chief products of the islands are coconuts, yams, breadfruit, oranges, pineapples, and bananas.

ASSEMBLED TO WITNESS THE GREAT SAMOAN GAME, CRICKET, INTRODUCED BY MISSIONARIES MANY YEARS AGO

In the foreground we see the occupants of the "bleachers," or is it the players' bench? Recently a college man taught these natives the joys of the "Serpentine" with which to celebrate a victory after the fashion of American football players.

THE SAMOAN VILLAGES CLUSTER CLOSE TO THE SHORELINE

Pago Pago, or Pango Pango, as it is also called, is the only good harbor in American Samoa. It occupies the crater of an extinct volcano. There are no public lands in the American group, the natives owning their own small farms and plantations, where they cultivate tropical fruits.

THE SAMOAN PAQUIN ACHIEVED A NOTABLE TRIUMPH WHEN HE ADDED A FRINGE TO THE NATIVE COSTUME: NOTE THE TWO CONSCIOUS BEAUTIES AT THE RIGHT

cricket games between rival native villages. The last-named duty is sometimes a severe test for the soldier as an arbitrator, especially when his own village is involved in the controversy.

The multifold activities of our South Sea soldiers seem rather at variance with the conceptions most of us have about native life in the islands of the South Pacific. We picture a native as lolling under a coconut tree, an obliging wife sitting close by, waving a palm leaf to "shoo" away the flies from her lord, and food on the branches of near-by trees within easy reach of both.

When the Governor of American Samoa makes a tour of inspection of Tutuila, he is always accompanied by native soldiers. The Fita-Fita selected to be the orderly on such occasions holds a proud position among his friends.

The official party is received with great dignity and formality by the chiefs of the villages on these tours, as the Samoans delight in ceremony and speechmaking. The reception accorded the Fita-Fitas by the pretty, vivacious Samoan belles of the different villages is always exceedingly cordial. These maidens, with bronze complexions, are as susceptible to the fascinations of the *lava-lava* uniform as their sisters in America are partial to khaki and brass buttons.

In some of their leisure hours the Fita-Fitas work in pineapple plantations and vegetable gardens, which they cultivate on the community plan. With customary Samoan generosity, they take great pleasure in presenting the *papalangi* (white people) with the fruits of their toil. Often a Fita-Fita will deposit a bunch of bananas or a sack of delicious avocados on the veranda of one of his white friends.

MUSIC HAS CHARMS FOR THE SAMOAN SOLDIER

The principal feature of the Fita-Fita organization is the band. A little more than a decade ago the natives of Ameri-

can Samoa had never seen a brass instrument, but with infinite patience a bandmaster of the United States Navy eventually taught some of the Fita-Fitas how to play, with the result that today the repertoire of the Fita-Fita band covers a wide range of classical and popular airs.

Each steamer from "the States" brings a new supply of popular music, and when a ship en route to Australia stops over in the harbor of Pago Pago, the native military band goes on board and plays while the passengers dance. As the steamer goes out of the harbor, the musicians invariably assemble on the dock and play some farewell airs.

The music dispensed for home consumption is an absolute necessity for dances at the naval station, where sturdy bluejackets and lovely half-caste girls sway to the strains of the latest airs of Broadway.

A WOOD NYMPH OF SAMOA

The natives of these islands are pure Polynesians, light brown in color, of splendid physique, lithe and graceful. They are a simple, generous, hospitable people. Their language, musical and liquid, has been called "the Italian of the Pacific."

THE BAND AS A PATRIOTIC INSPIRATION

When the Fita-Fita band plays the national anthem at "colors," it is a most impressive sight to see every Samoan man, woman, and child within sound of the music stand in silence and with simple dignity until the last note has been sounded.

The favorite form of recreation for the Fita-Fitas is cricket. The English missionaries taught the Samoans the game, and cricket tournaments are gala events in the islands. Instead of having the regulation eleven on each side, however, the natives have as many as forty or fifty, so that a game very often assumes the proportions of a miniature battle.

The "rooting" section is the prime attraction at the tournament. The antics and capers of the Samoan "bleacherites" at their games would make the "stunts" of the undergraduates at an intercollegiate game seem tame in comparison. The natives crouch on the side lines, beating wooden drums and giving vent to wild chants, easily eclipsing our own college

"IN THE SHADE OF THE SHELTERING PALMS," EVERY SAMOAN VILLAGE HAS AN IDEAL SETTING

But the palm is not a mere thing of beauty; it is a joy to the native taxpayer, who meets his obligation to the islands' government by the payment of dried coconut meat. Here one estimates his debts in pounds and tons rather than in dollars, for copra is a medium of exchange. The natives pay into the treasury for their share of the government expenses between 500,000 and 550,000 pounds of copra annually.

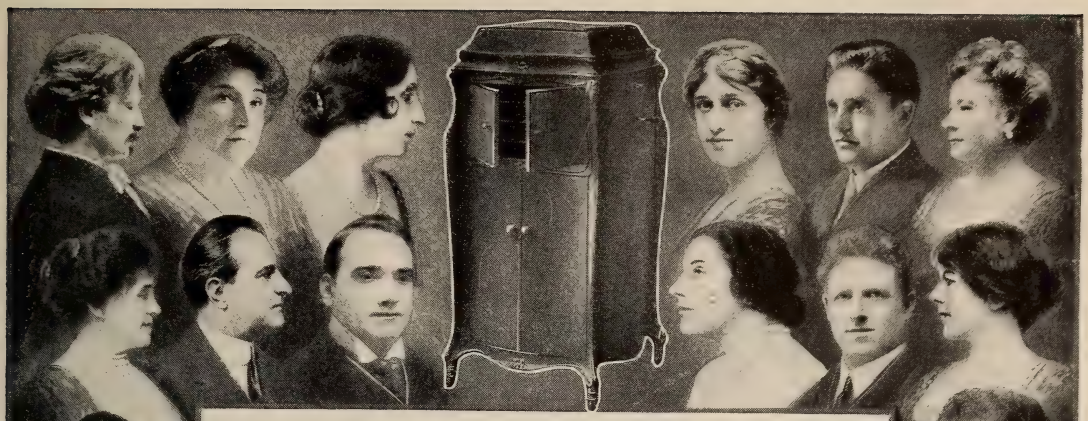
cheers, as far as volume of noise is concerned.

INTRODUCING THE SERPENTINE DANCE AMONG SAMOAN ATHLETES

A college man visiting the Island of Tutuila impressed some of the native leaders with the idea that the cricket tournaments should end in a serpentine as it is practiced after the big football games in America. As a result the serpentine is now the grand finale of all the cricket games, and it is an amusing sight to see the vanquished team look on with stolid countenances while the victorious players give full vent to their barbaric instincts, racing about the grounds, leaping into the air, and shouting triumphant war cries.

Courage of a high degree is characteristic of the Samoans. The world looked on with admiration in 1889 when the natives defied the warships of three nations—three American ships, one British, and three German. Then, when a hurricane swept the harbor of Apia on March 16, 1889, and destroyed all the assembled warships with the exception of the British *Calliope,* these "savages" swam out and rescued their enemies.

The allied nations called on their subjects in the South Sea isles to join the mother countries in the vast struggle in Europe. Britain had her Fiji Islanders and Maori natives fighting for her; loyal Tahitian subjects fought for France. If the war had continued, we might have seen our Samoan friends "doing their bit" for their foster-mother country.



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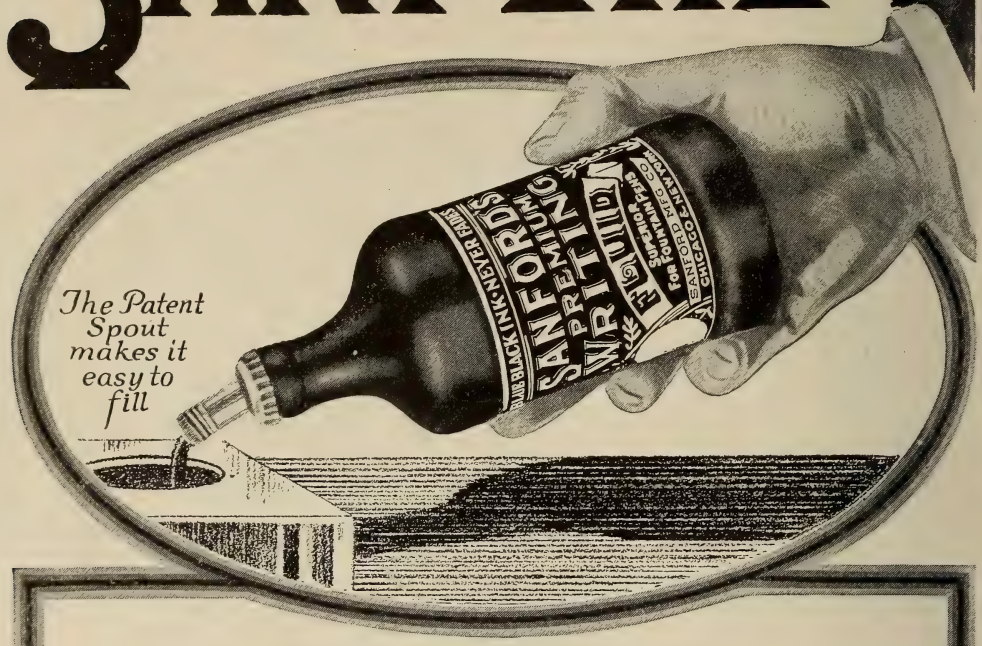

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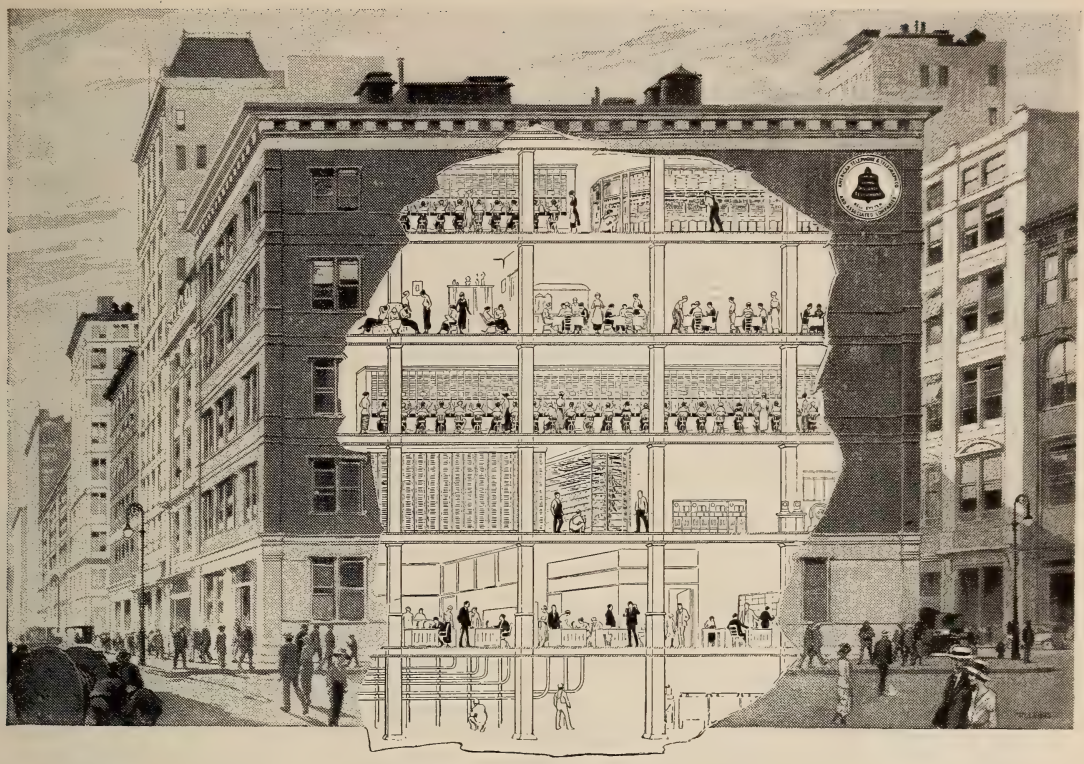

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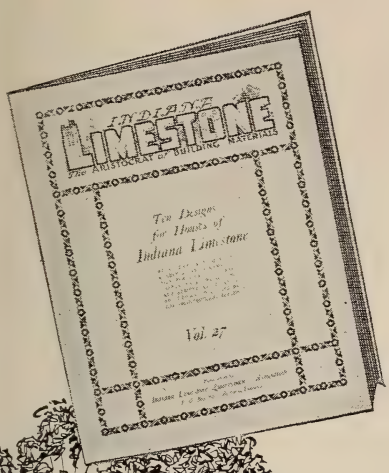

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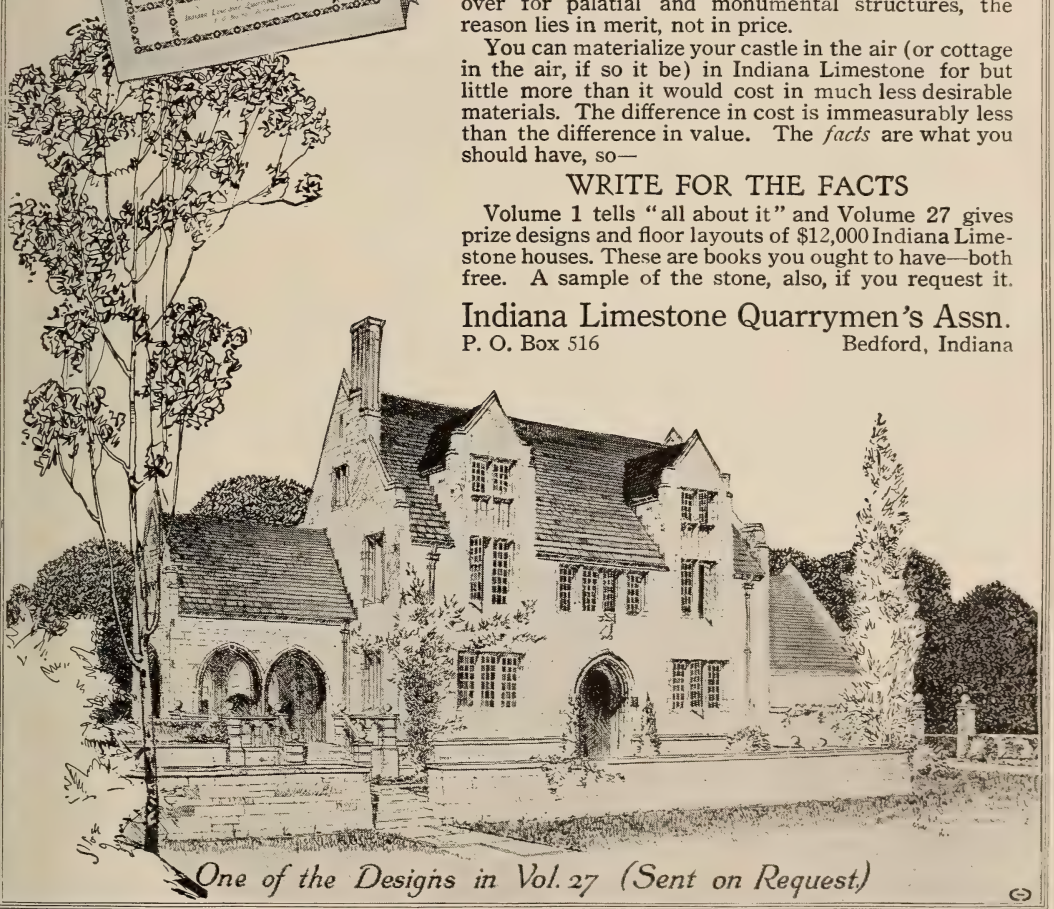

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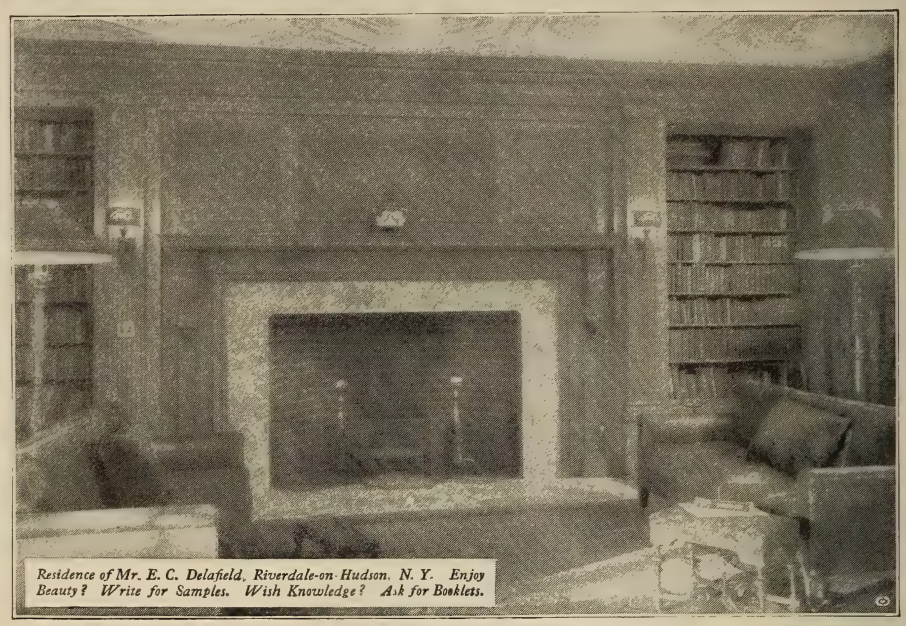

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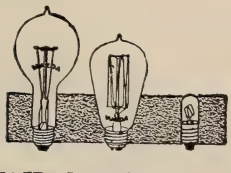

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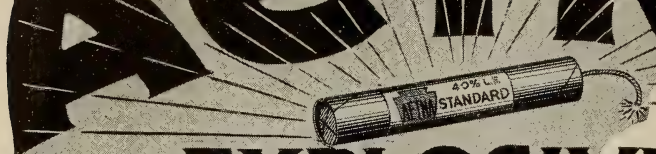

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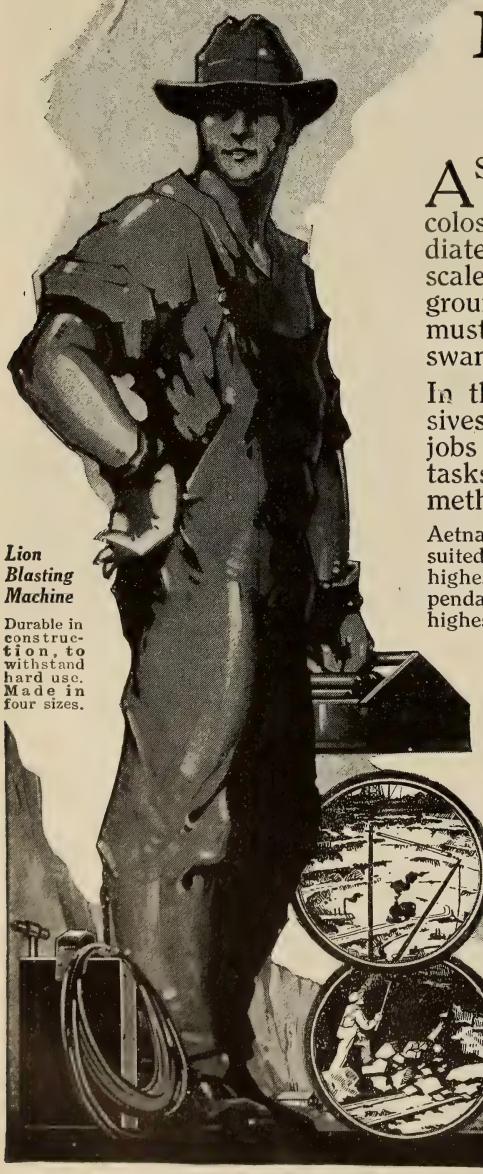

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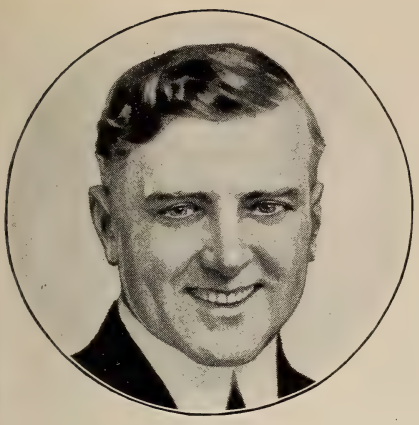

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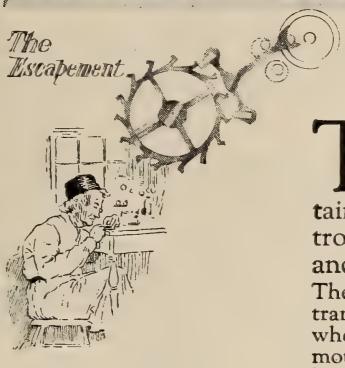

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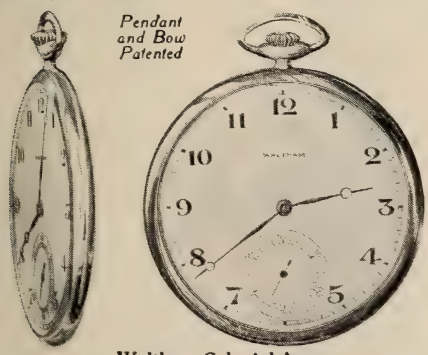

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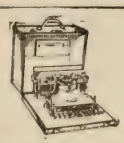

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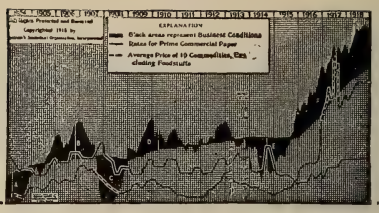
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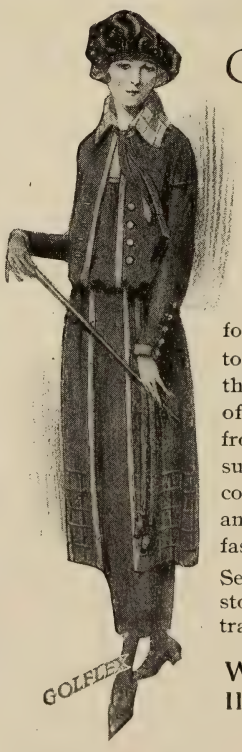

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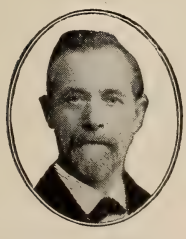

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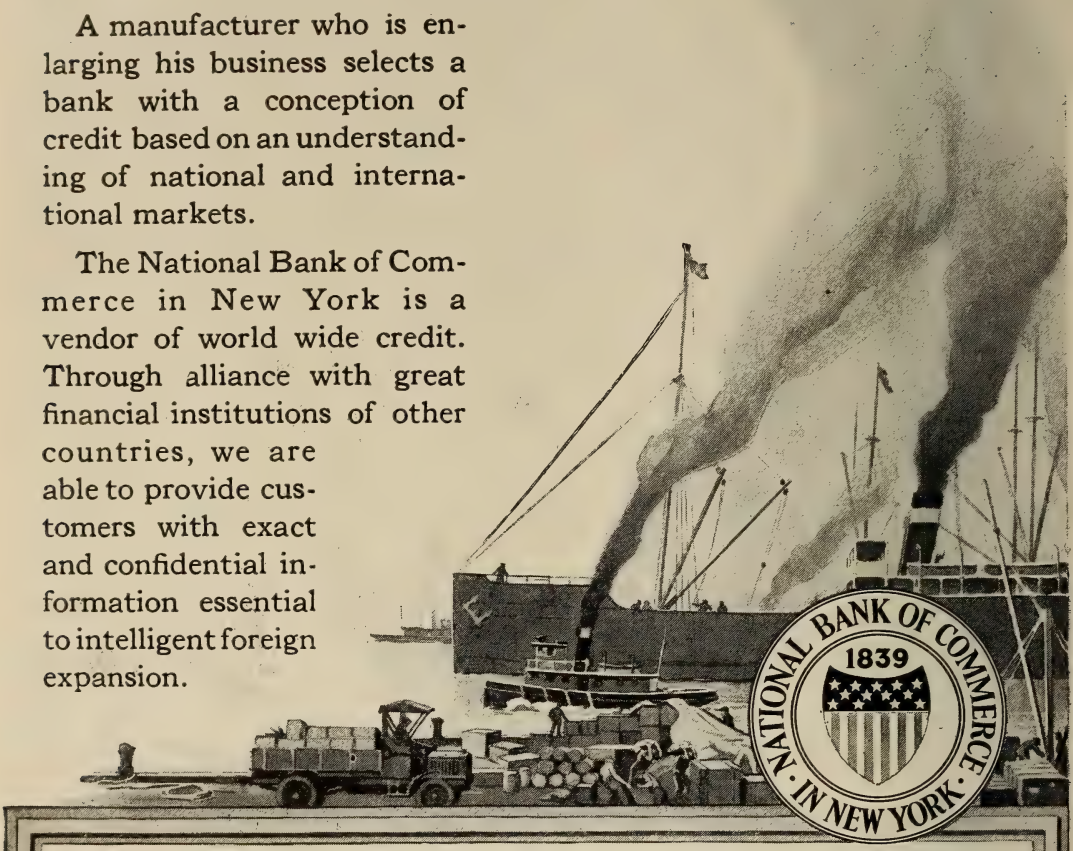

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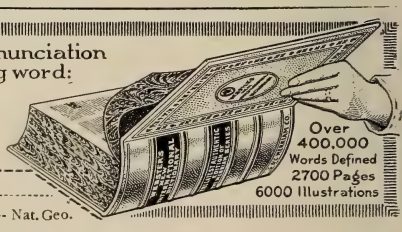

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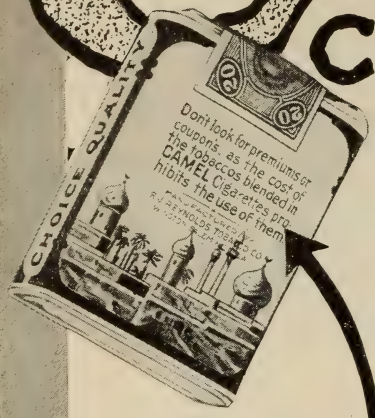
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Smokers realize that the value is in the cigarettes and do not expect premiums or coupons!

Camels supply cigarette contentment beyond anything you ever experienced! You never tasted such full-bodied mellow-mildness; such refreshing, appetizing flavor and coolness. The more Camels you smoke the greater becomes your delight—*Camels are such a cigarette revelation!*

Everything about Camels you find so fascinating is due to their quality—to the expert blend of choice Turkish and choice Domestic tobaccos. *You will prefer this blend to either kind of tobacco smoked straight.*

You'll say Camels are in a class by themselves—they seem *made to meet your own personal taste* in so many ways!

Freedom from any unpleasant cigaretty aftertaste or unpleasant cigaretty odor makes Camels particularly desirable to the most fastidious smokers. And, you smoke Camels as liberally as meet your own wishes, for they never tire your taste! You are always keen for the cigarette satisfaction that makes Camels so attractive.

Compare Camels with any cigarette in the world at any price!

R. J. REYNOLDS TOBACCO COMPANY, Winston-Salem, N. C.

Camels are sold everywhere in scientifically sealed packages of 20 cigarettes or ten packages (200 cigarettes) in a glassine-paper-covered carton. We strongly recommend this carton for the home or office supply or when you travel.

Her Mouth Is Growing Old

STILL YOUNG—but her mouth is growing old. The pretty lips are losing their youthful contour. They are taking on the look of withered age.

"Pyorrhea," says her dentist. A long neglected case. The gums are shrunken and receding—the teeth loosening, and decaying fast.

Pyorrhea is a preventable disease. Take proper care of your gums and teeth and you will not have it.

Forhan's for the Gums will prevent Pyorrhea—or check its progress, if used in time and used consistently. Ordinary tooth pastes and powders cannot do this.

If you have tender, bleeding gums (the first symptom of Pyorrhea) start to use Forhan's immediately. Then watch that bleeding stop, and the tenderness disappear.

But better still, don't wait for symptoms. End the trouble before it begins. Keep Pyorrhea, its disfigurements and train of dangerous ills away by using Forhan's for the Gums. It makes the gums firm and healthy—the teeth white, and clean.

How to Use Forhan's

Use it twice daily, year in and year out. Wet your brush in cold water, place a half inch of the refreshing, healing paste on it, then brush your teeth *up and down*. Use a rolling motion to clean the crevices. Brush the grinding and back surfaces of the teeth. Massage your gums with your Forhan-coated brush—gently at first until the gums harden, then more vigorously. If the gums are very tender, massage with the finger, instead of the brush. If gum-shrinkage has already set in, use Forhan's according to directions and consult a dentist immediately for special treatment.

35c and 60c tubes in the United States and Canada. At all druggists.

Forhan Company, 200 Sixth Ave., New York
Forhan's, Ltd., 307 St. James St., Montreal

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THE SAFE ANTISEPTIC

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Valuable as a lotion in eruptive or irritated conditions of the skin.

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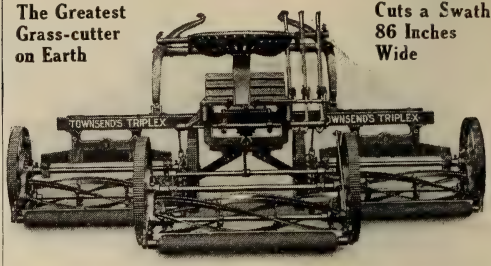
The Greatest Grass-cutter on Earth

Cuts a Swath 86 Inches Wide



Floats Over the Uneven Ground as a Ship Rides the Waves

One mower may be climbing a knoll, the second skimming a level, while the third pares a hollow. Drawn by one horse and operated by one man, the TRIPLEX will mow more lawn in a day than the best motor mower ever made; cut it better and at a fraction of the cost.

Drawn by one horse and operated by one man, it will mow more lawn in a day than any three ordinary horse-drawn mowers with three horses and three men.

Does not smash the grass to earth and plaster it in the mud in springtime, neither does it crush the life out of the grass between hot rollers and hard, hot ground in summer, as does the motor mower.

The public is warned not to purchase mowers infringing the Townsend Patent, No. 1,209,519, December 19th, 1916.

Write for catalog illustrating all types of Lawn Mowers.

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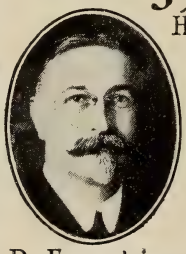
Training for Authorship

How to write, what to write, and where to sell.



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One pupil has received over $5,000 for stories and articles written mostly in spare time—"play work," he calls it. Another pupil received over $1,000 before completing her first course. Another, a busy wife and mother, is averaging over $75 a week from photoplay writing alone.

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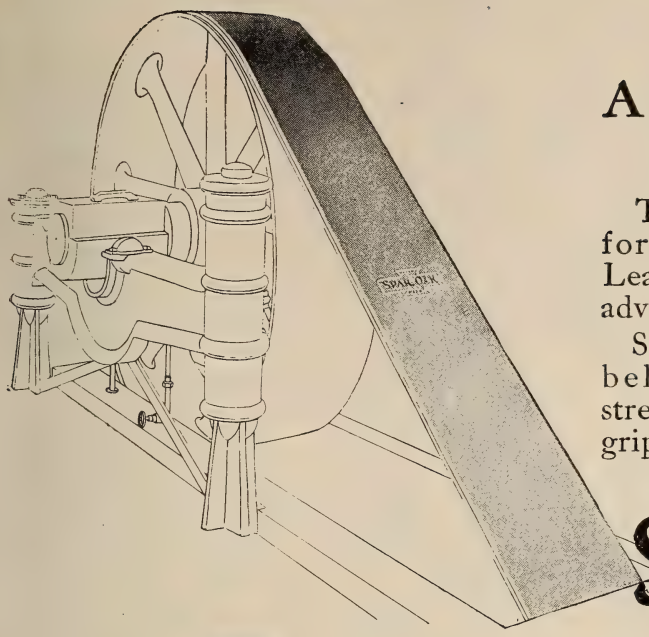

The picture shows an 18 in. SparOak Belt driving a beater in a paper mill—hard duty in a warm, moist atmosphere. SparOak is the answer to a great many perplexing belt problems, saving power and standing up under the most severe conditions.

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There is nothing like leather for belting, and SparOak Leather Belting has peculiar advantages all its own.

SparOak is a two-in-one belt, combining rugged strength with unique pulley-grip.

SparOak Belting

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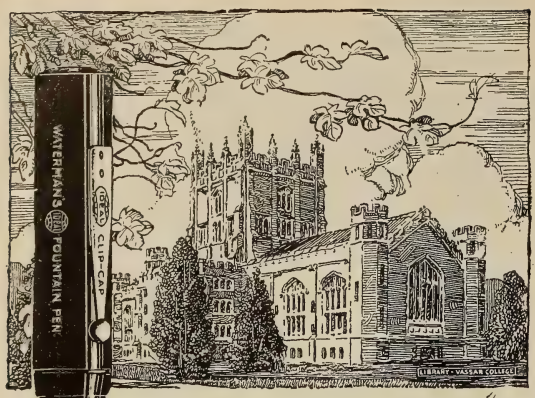
Leather Belting
Tanned by us for belting use



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DOG CAKES and PUPPY BISCUITS

of the highest pre-war quality

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Salt Mackerel

CODFISH, FRESH LOBSTER

FOR THE CONSUMER NOT THE DEALER

FOR YOUR OWN TABLE

FAMILIES who are fond of **FISH** ought to get them **DIRECT** from **GLOUCESTER,** as no inland dealer anywhere else can possibly be in a position to offer you goods as perfect and wholesome as we can.

We sell **ONLY** to the **CONSUMER DIRECT,** not through grocers or markets. We want to supply **YOU,** no matter how small your requirements.

We have done a mail-order fish business for thirty years, sending the goods **RIGHT TO OUR CUSTOMERS' HOMES, EXPRESS PREPAID EAST OF KANSAS,** and guaranteeing complete satisfaction or money refunded.

If you are interested in good fish, won't you drop us a postal that we may send you further information?

Our **SALT MACKEREL** are tender, juicy fellows—broiled for breakfast they are delicious. **SALT CODFISH** selected and prepared by our method is unexcelled.

Much of the fresh fish you buy in the market is at least several days old. **OUR CANNED FISH,** being **STEAM STERILIZED,** is **ABSOLUTELY FRESH.**

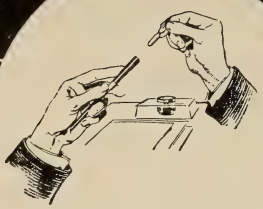
Our **FRESH LOBSTERS,** in parchment-lined cans, go through no process except boiling (no preparation of any kind being used). Opened and packed solid in whole pieces as soon as taken from the water, they retain their crispness and natural flavor. **CRABMEAT, SHRIMP** and **CLAMS** have likewise a perfectly natural appearance and taste.

Our **SALMON, TUNNY** and **IMPORTED FISH DELICACIES** are always the best produced.

A selection of our **FISH PRODUCTS** should always be in your **STORE-ROOM** for daily use and for the preparation at a moment's notice of dozens of dainty or substantial dishes.

Send for Descriptive Price List

Frank E. Davis Co., 296 Central Wf., Gloucester, Mass.



"like putting a new pen in a pen-holder"

That is a simple thing to do—but no easier than renewing your Colgate's "Handy Grip" Shaving Stick. The soap is threaded and screws into the metal "socket." When it is nearly gone, *unscrew* the stub and screw in a "Refill" stick. You can buy this all threaded to fit—for less than the cost of a complete "Handy Grip," and you save the price of a new metal box.

Some men still prefer to shave with a Cream though it is the least economical way. To these men, this friendly word: Clip this paragraph and mail it to us before Nov. 15, 1919. We will send you, free, a trial tube of Colgate's Perfected Shaving Cream. You cannot be sure you know the best till you have used Colgate's. But we give you the impartial advice to use the "Handy Grip" as the most convenient and economical way to shave. We *can* do this impartially, as we make all three forms of shaving soap—Stick, Powder, and Cream.

Wet the old stub and press it on the "Refill"—it sticks. The "Refill" saves you the cost of a new metal box.

COLGATE & CO., Dept. 66, 199 Fulton St., New York

COLGATE'S "HANDY GRIP"

PATENTED 1917

The only Refill Shaving Stick

PRINCE ALBERT certainly will put some frolic into that pet pipe of yours! To pack that joy'us old jimmy brimful or roll a makin's cigarette and hit'er up a notch or two is just going right over the top with your eyes wide open!

What P. A. will do for your taste and tongue you sure ought to know! Like the gentleman from Sparrow's Point you'll call P. A. a good egg! You'll smoke a pipe full and talk a bucket full—Prince Albert is such a great, big bunch of smokesunshine!

You'll quick catch the P. A. cue that it can't bite or parch; that Prince Albert's exclusive patented process frees it from bite and parch! And makes the sky the smoke limit!

Give Prince Albert high pressure for flavor and fragrance! Put P. A. through your little old taste-test-mill—and—just let that q-u-a-l-i-t-y percolate into your smokesystem! *You'll say it is!*

R. J. REYNOLDS TOBACCO CO., WINSTON-SALEM, N. C.

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PRINCE ALBERT

the national joy smoke

You buy Prince Albert everywhere tobacco is sold. Toppy red bags, tidy red tins, handsome pound and half pound tin humidors—and—that classy, practical pound crystal glass humidor with sponge moistener top that keeps the tobacco in such perfect condition.

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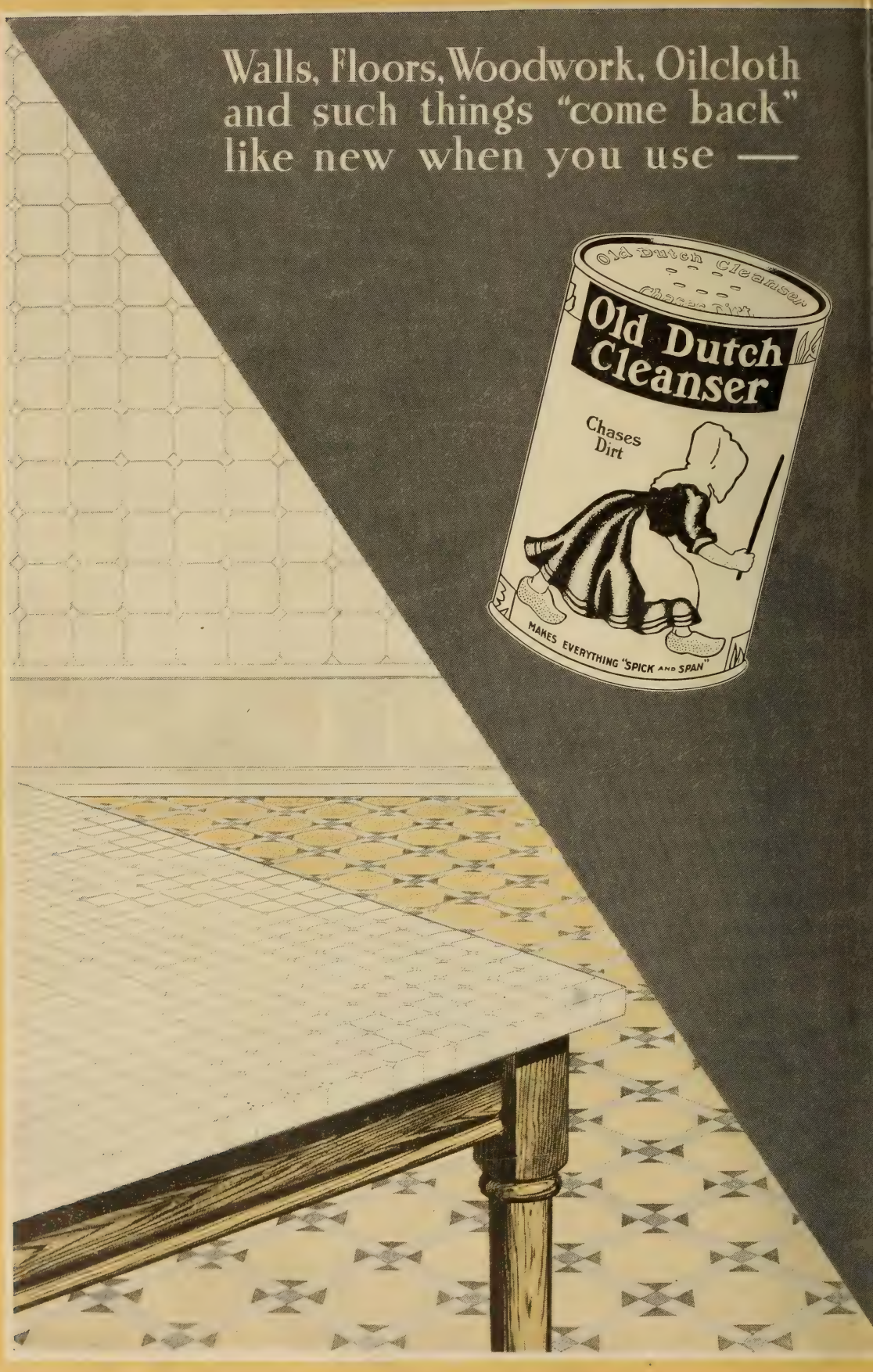
Walls, Floors, Woodwork, Oilcloth
and such things "come back"
like new when you use —
Old Dutch Cleanser
Chases Dirt
Old Dutch Cleanser
Chases
Dirt
MAKES EVERYTHING "SPICK AND SPAN"

VOLUME XXXVI NUMBER FOUR

THE NATIONAL GEOGRAPHIC MAGAZINE

OCTOBER, 1919

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ORGANIZED FOR "THE INCREASE AND DIFFUSION OF GEOGRAPHIC KNOWLEDGE"

To carry out the purpose for which it was founded thirty-one years ago, the National Geographic Society publishes this Magazine. All receipts from the publication are invested in the Magazine itself or expended directly to promote geographic knowledge and the study of geography. Articles or photographs from members of the Society, or other friends, are desired. For material that the Magazine can use, generous remuneration is made. Contributions should be accompanied by an addressed return envelope and postage, and be addressed: Editor, National Geographic Magazine, 16th and M Streets, Washington, D. C.

Important contributions to geographic science are constantly being made through expeditions financed by funds set aside from the Society's income. For example, immediately after the terrific eruption of the world's largest crater, Mt. Katmai, in Alaska, a National Geographic Society expedition was sent to make observations of this remarkable phenomenon. So important was the completion of this work considered that four expeditions have followed and the extraordinary scientific data resultant given to the world. In this vicinity an eighth wonder of the world was discovered and explored—"The Valley of Ten Thousand Smokes," a vast area of steaming, spouting fissures, evidently formed by nature as a huge safety-valve for erupting Katmai. By proclamation of the President of the United States, this area has been created a National Monument. The Society organized and supported a large party, which made a three-year study of Alaskan glacial fields, the most remarkable in existence. At an expense of over $50,000 it has sent a notable series of expeditions into Peru to investigate the traces of the Inca race. The discoveries of these expeditions form a large share of the world's knowledge of a civilization which was waning when Pizarro first set foot in Peru. Trained geologists were sent to Mt. Pelee, La Soufriere, and Messina following the eruptions and earthquakes. The Society also had the honor of subscribing a substantial sum to the historic expedition of Admiral Peary, who discovered the North Pole April 6, 1909. Not long ago the Society granted $20,000 to the Federal Government when the congressional appropriation for the purchase was insufficient, and the finest of the giant sequoia trees of California were thereby saved for the American people and incorporated into a National Park.

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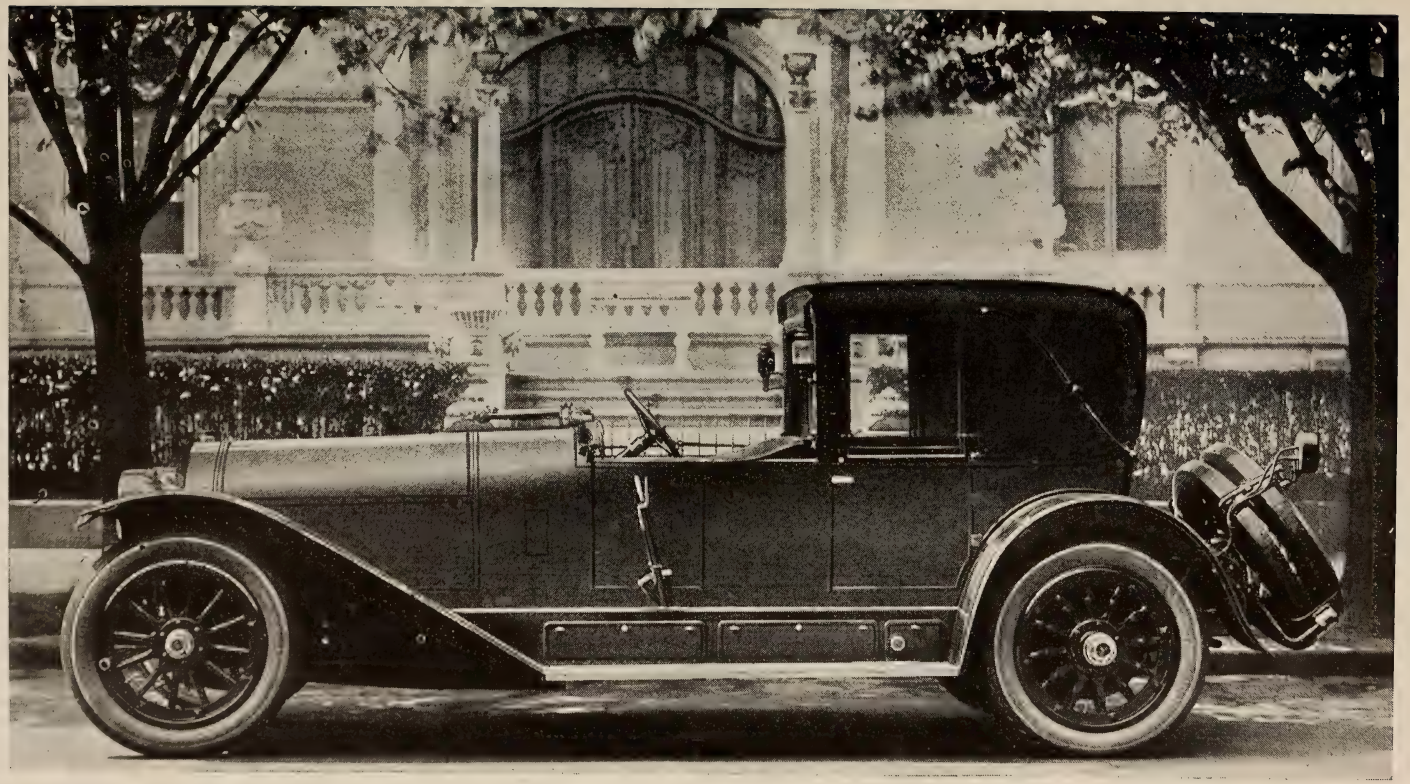

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Custom Design by the Locomobile Company of America, Bridgeport, Conn.

YOU will be delighted with the wonderful effect of Goblin Soap on the little grimy, play-stained hands. The dirt is dissolved in creamy lather and the skin is left in a beautifully healthy condition. Fine for office, home or shop, toilet or bath, a good all around soap.

If your dealer does not have Goblin Soap, send us his name and we will see that you are promptly supplied.

CUDAHY, 111 West Monroe Street, Chicago
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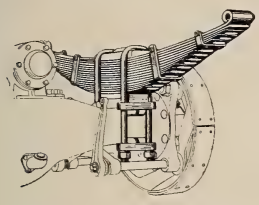
—In Marketing Livestock



The Springs

GMC Springs, as one unit in the structural plan, are wider, longer, and more sturdy, amply strong to carry the rated load under all road conditions. On the efficient functioning of these Springs depend long life and flexibility.

This ton-and-a-half GMC Truck earned $3,300 the first year of its operation hauling livestock for its owner, A. C. French, Honey Creek, Ia.

In 250 trips from Honey Creek to the South Omaha stock yards a million pounds of cattle on the hoof were carried—a total mileage of 8,750.

According to the owner's statement, taken from detailed daily records, the total upkeep expense for this first 12 months was $6.90, and the original tires are apparently good for another 12 months.

Still another profitable feature of the performance of this GMC Truck—and one, by the way, which does not appear in the daily record—was the prevention of loss through shrinkage. That alone is a big item.

GMC Trucks are built with every regard for the efficient service shown in this instance—economy of operation, mechanical strength, reliability, endurance, and low tire expense.

Behind every GMC Truck is the backing of the General Motors Corporation, the largest and most important organization in the automotive industry.

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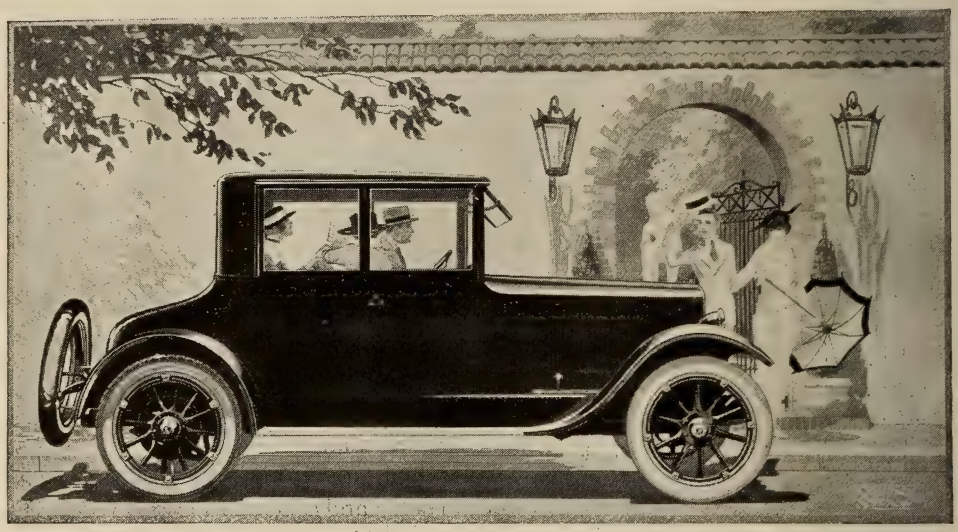

A Truly Charming Car, This New Chandler Coupe

YOU who desire a handsome closed car, seating three or four persons in luxurious comfort, will be delighted with the new series Chandler Coupe. It is one of the smart cars of the season, and just as good as it is handsome.

The most exacting persons agree that the Chandler Coupe is one of the unusual cars. It is full of attractive style without the suggestion of any freakishness in design. Its dignity, its long graceful lines, the roominess of the body, the rich silk plush upholstery, the lustre of the finish, make this a car to be chosen by discriminating purchasers.

This splendid body is mounted on the famous Chandler chassis, distinguished for its marvelous motor and the sturdiness of its entire construction.

SIX SPLENDID BODY TYPES

Seven-Passenger Touring Car, $1795 *Four-Passenger Roadster, $1795*

Four-Passenger Dispatch Car, $1875

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Dealers in all Principal Cities and Hundreds of Towns

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The Jack for Jill

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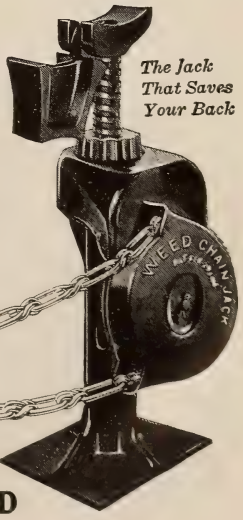

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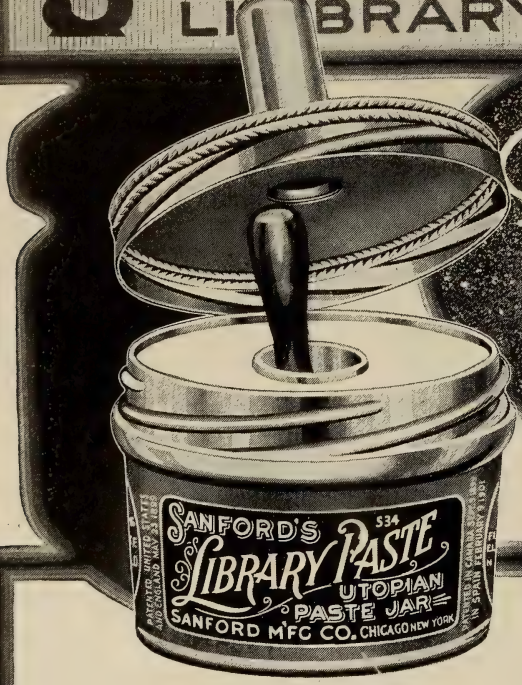

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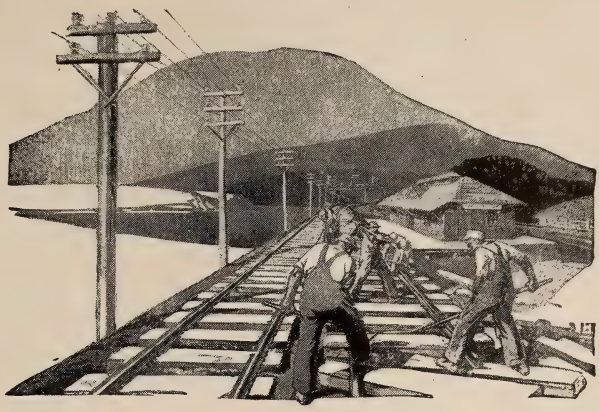

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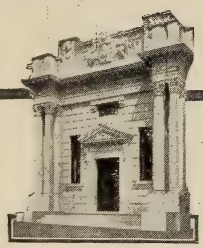

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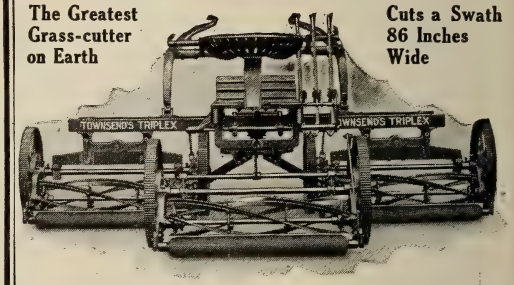

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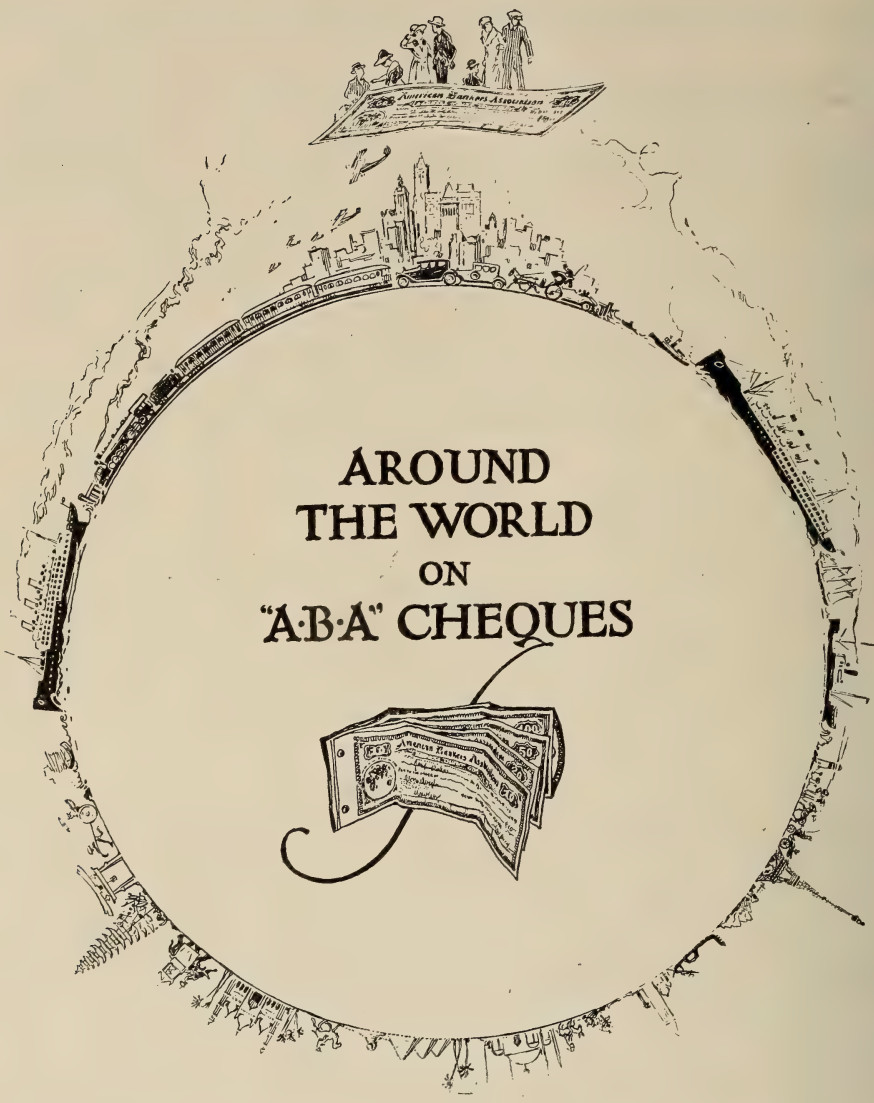

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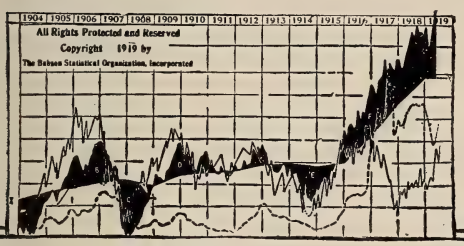
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VOL. XXXVI, No. 4 WASHINGTON OCTOBER, 1919

THE NATIONAL GEOGRAPHIC MAGAZINE

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A VANISHING PEOPLE OF THE SOUTH SEAS

The Tragic Fate of the Marquesan Cannibals, Noted for Their Warlike Courage and Physical Beauty

BY JOHN W. CHURCH

THREE thousand years or more ago a horde of savages drove their war canoes ashore on a group of volcanic islands lying in the South Pacific between 8° and 11° south latitude and 138° and 141° west longitude.

Who they were or why they came; what of religion, custom, and tradition they brought with them on their remarkable journey across the ocean, remains almost entirely hidden, probably forever, in the misty realm of conjecture.

That they formed part of that hegira from the Asiatic Archipelago which peopled so many islands of the South Seas with cannibal savages is established beyond doubt; and it has been asserted that the Marquesans were the first of the wanderers to leave their native land.

Philology has demonstrated the link existing between all the Polynesians inhabiting the South Pacific from Hawaii to the Malay Peninsula, and offers the interesting suggestion that Hiva, the native title for the Marquesas and incorporated in the names of three of the group (Nukuhiva, Fatuhiva, and Hivaoa), is but a corruption of Siva, the ancient worship of Java.

Of records or traditions of their life in their adopted home prior to their discovery by Mendana, the present-day Marquesan is lamentably ignorant. I was informed that one of the few investigators who have visited this remote group secured, some fifty years ago, a *matu tatua,* or family genealogy, running back 135 generations, or about 4,000 years!

GALLANT DISCOVERER NAMES ISLANDS FOR HIS PATRON'S WIFE

My efforts to verify this remarkable feat of Marquesan memory proved entirely fruitless. Possessing no written language, having allowed their *maies,* or sacred groves, to fall into decay, and, unlike the Tahitians, neglected to keep a record of their families and traditions by a system of *orero,* or bards charged with rehearsing and teaching them to each succeeding generation, the various tribes have lost practically all knowledge of their early history.

In the year 1595 a Spanish fleet under the command of Alvara Mendana, sailing from South America in search of gold, discovered Fatuhiva, the southernmost of the eleven islands comprising the group.

With commendable gallantry, the Spanish captain named the group Illas Marquesas de Mendoza, in honor of the wife of his patron, Don Garcia Hurtad de

Photograph by L. Gauthier

A DAUGHTER OF A DYING RACE

Beautiful, luxuriant hair, fine eyes, perfect teeth, a slender, graceful form, a skin of velvet texture and unblemished surface—these are the physical attributes of the few Marquesannes who survive as worthy representatives of a people seared by the sins of the white man.

Mendoza, Viceroy of Peru. Hanavave, the bay in which the voyagers first dropped anchor, Mendana called Bay of the Virgins, and, being a keen observer of savage habits and customs, his choice of a designation for a Marquesan village leads me to believe the doughty captain had a well-developed sense of humor.

Only the three lower islands were visited by the Spaniards. These were christened Santa Magdalena, Dominica, and Santa Christina. The northern units of the group, "discovered" at various times during the ensuing two centuries by half a dozen voyagers, including our own Admiral Porter, in 1813, were given "Christian" names, as were many of the fifty-odd bays which indent their shores.

The attempt to replace the native terms proved futile in almost every instance, and today the individual islands are known by their original designations. The only name to stand the acid test of time was the record of Mendana's gallantry, and this was shortened to "Marquesas" for actual service. Even this long accepted and generally used title has been altered by the French, who indicate their ownership by giving the Spanish name a Gallic flavor. The group is now charted as Iles Marquises. The Bay of the Virgins, though sometimes mentioned as Baie des Vierges in the charts, is known officially and unofficially as Hanavave.

AN EARTHLY PARADISE, SAID THE SPANIARDS

Those old Spanish chroniclers, Mendana, Figueroa, and Quieros, were enthusiastic to the verge of vehemency over this discovery. To them the islands seemed nothing short of an earthly paradise—a paradise marred somewhat, it is true, by the cannibal tendencies of the fierce, cruel warriors who swarmed by thousands in every bay and valley; but the marvelous beauty of the women and the tropical splendor of the islands evidently outweighed the ever-present possibility of becoming "long pig,"—*pua oa*—the Marquesan's somewhat startling description of the human victim intended to grace his feast.

The approach to Hanavave, which gave the Spaniards their first glimpse of the Marquesas, hardly prepared them for the wonders they were soon to witness.

From afar Fatuhiva looms a dim, mysterious mass on the horizon, bleak and forbidding; nor does a near approach soften the grim contour of the coast line. Sheer from the ocean's depths rise huge masses of towering, storm-worn basalt, seamed and riven by a thousand tempests. Here and there a gnarled and twisted ironwood has driven its tenuous roots into the scarred face of the cliff, the scanty, wind-blown foliage white with encrusted salt from high-tossed sea. Below, into the black mouths of gloomy caverns, the ceaseless waves fling their white-crested battalions with a monotonous roar, to be spumed forth again in froth and spray.

In the distance, its jagged, cloud-piercing peaks unrelieved by tree or shrub, rises the broken rim of a great crater, standing today, as it has stood through the centuries, a monument to the volcanic fires which thrust that molten mass above the hissing sea, to cool and crack into a fantastic jumble of serrated ridges, mighty precipices, and impassable gorges.

SCENES OF CAPTIVATING CONTRASTS

The amazement and delight of Mendana as his ship passed the towering black cliffs guarding the entrance to Hanavave is easily comprehended. The narrow bay was formed by the falling away of a section of the crater's wall, and through this opening, framed by gigantic, grotesque pillars and domes of black rock towering hundreds of feet skyward, one looks directly into the great bowl of the mountain whose bare, broken rim was visible from beyond the coast.

But what a contrast! Where once telluric fires burned, the luxuriant verdure of the tropics now overruns the immense amphitheater in riotous profusion. It is as if Nature in repentant mood were pouring out her gifts with unstinted hand to cover the scars and desolation wrought by volcanic fury.

Tree and vine, flower and shrub, cover the abrupt, almost vertical sides of the huge basin and clamber high over ridge after ridge of knife-like hills; choke the deep ravines and valleys with their prolific mass of bloom and foliage, and,

Photograph by L. Gauthier

A SCENE IN THE VALLEY OF HANAVAVE, ALSO KNOWN AS "BAY OF THE VIRGINS," WHERE THE SPANISH DISCOVERERS OF THE MARQUESAS ARCHIPELAGO FIRST LANDED

Photograph by L. Gauthier

A GROUP OF NATIVES POSING FOR THEIR PICTURES IN THE JUNGLE

In Marquesas' halycon days physical beauty, rather than cleanliness, was next to or even superior to godliness. The members of both sexes spent many hours each day in the hands of skilled masseurs, who anointed the body and hair with coconut oil scented with the fragrant blossoms of *pua* or the seeds of the spicy, aromatic lime.

Photograph by John W. Church

A PRETENTIOUS NATIVE HOUSE AT ATAONA: MARQUESAS ISLANDS

Each thatched hut has its *paepae,* or platform of stone, constructed without cement or mortar. The house furnishings consist solely of two or three mats, upon which the occupants sleep.

creeping in rich abundance almost to the water's edge, climb the black basalt cliffs towering over the bay, thus seeking to soften their harsh, broken outlines beneath a rank growth of vines and mosses.

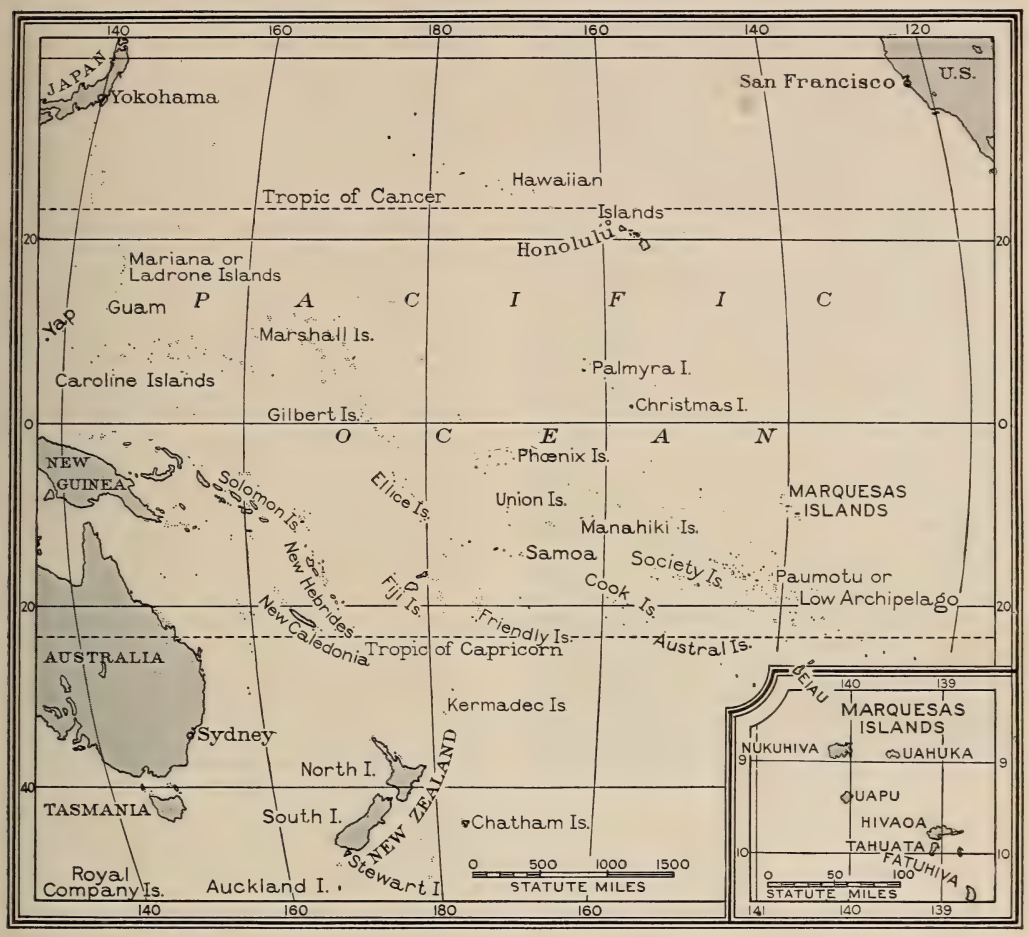
Great cascades, springing from the living rock high on the mountain side, leap over mighty precipices, gleaming like strands of silver in the sunlight, to be lost in the mysterious depths of dark gorges far below. These waters wind through dank, tortuous ravines and form the racing stream that tumbles swiftly between the twisting hills into the steep valley of Hanavave, where it rushes over its rocky bed to pass into the blue waters of the quiet bay.

THE TRADITION OF MENDANA'S SAILORS AND THE MARQUESAN HELENS

Beyond the crescent of white sand that lies between the cliffs, banyan, mango, and breadfruit trees mingle their brilliant foliage and blossoms with the slender brown trunks and waving fronds of the pandanus and coco palm.

Less than a century ago this forest was thickly dotted with the brown thatched huts of the Hanavavans, each upon its *paepae* or platform of stone constructed without mortar or cement. The abrupt slopes and twisting, broken formation forced the Marquesan to become adept in dry stone-work, and he met the difficulty with skill and intelligence. Thousands of these *paepae,* no longer in use, cling to the vertical sides of valleys and ravines in a state of perfect preservation, the platform usually 20 by 30 or 40 feet, level and unbroken, often walled up 10 or 15 feet on the lower side.

Properly to comprehend the life of the Marquesan, his customs and habits, a clear understanding of the physical conditions under which he lived prior to the white man's advent is necessary.



Drawn by R. M. Parker

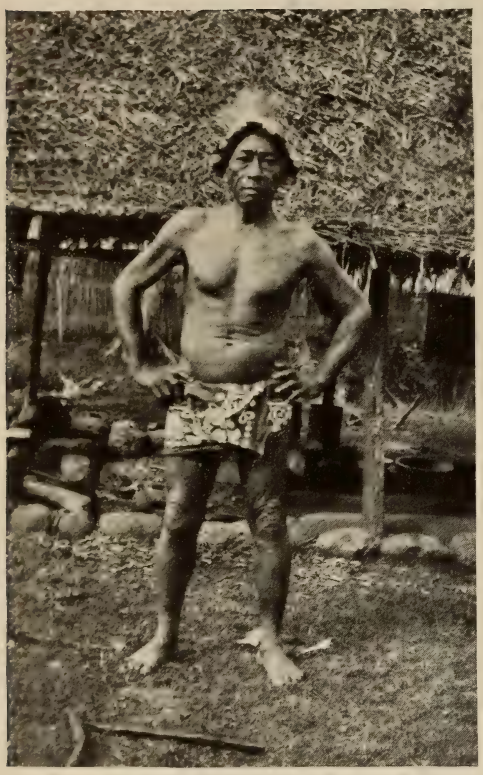
SKETCH MAP OF THE SOUTH PACIFIC ARCHIPELAGOES, INCLUDING THE MARQUESAS GROUP: NOTE THE LOCATION OF YAP AMONG THE CAROLINE ISLANDS

The brief visit of Mendana and his fleet had at best—or worst—a transitory effect upon these savages. There is an interesting tradition, still believed by the Hanavavans, that a number of Mendana's crew, enraptured by the physical pulchritude of the native women, deserted their ships, enacted a South Sea rape of the Sabines, braved the wrath of the cannibal warriors, and, taking with them a score or more of the most attractive maidens, fled over the mountain to an inland valley, where they lived happily ever after.

The story goes that from this adventure sprang a tribe of beautiful red-haired women and fierce warriors, who for generations raided the bay villages of Hanavave and Omoo when they came from their inland fastness for salt water, there being no salt deposits on the island.

Of the existence of such a village there is no proof; but in Hanavave and nowhere else in the islands I saw several women and boys with a wealth of rich auburn hair. In appearance otherwise they were full-blooded Marquesans. Of their descent, whether from the inland village or a less romantic source, they had no knowledge and evinced typical Marquesan indifference.

Aside from this single instance, if even it be true, the Spaniards left no mark on the few bays they visited. It was the ad-



Photograph by John W. Church

TAKI, A HUAHUKA CHIEF, WITH HIS HEAD-DRESS OF HUMAN HAIR, BONE, AND SHARK TEETH

He is heavily tattooed from head to feet, but the lens of the camera does not reproduce the blue figures on brown skin.

vent some two centuries later of an infinitely more energetic and business-like explorer, the famous Captain Cook, that marked the beginning of the rapid decadence and eventual extermination of the people he earnestly desired to aid. Cook rediscovered the Marquesas in 1774, while on his third voyage through the South Seas.

At that time there were eleven densely inhabited islands, with a total of some sixty bays and bay valleys, each supporting a population of from one to five thousand, and in some instances, such as Puamau, Taipi, and Hanavave, possibly nearer double that number. There were also several inland valleys with large villages.

To place the population of the group in 1774 at 150,000 would be a conservative estimate. Captain Cook gave a larger figure for the single island of Tahiti at the time of his first visit, and though for a long time his estimate was held to be absurdly high by men less familiar with the island, later investigations carefully pursued have established Cook's figures as essentially correct. The densely populated Marquesas in all probability exceeded in numbers the single island of Tahiti; but be that as it may, it is certain that had it not been for the incessant warfare between the tribes, the practice of cannibalism and other customs deterrent to a natural increase in their population, the islands would have become inadequate to the inhabitants' support many centuries ago.

THE PIG WAS THE MARQUESAN'S ONLY ANIMAL

Being of volcanic origin, the group was devoid of fauna. The pig, probably brought by the savages on the long journey from Asia, was their only animal. The dense forests and jungles were—and are—devoid of snakes, insects, etc., which usually abound in such disconcerting activity in tropical countries.

There were a few birds, mostly of seagoing species, but these did not interest the Marquesan, as he did not use them for food. The kuku, a species of parrakeet, is the only really edible bird in the islands today, and I do not know that it was in the Marquesas prior to Cook's visit.

In the bays and reefs along the coast there were many kinds of fish, from the man-eating moko, or shark, to the much smaller but more palatable bonita; and in the valleys and mountains nature had been lavish with her gifts. Some of the fruits and flowers are of a later period, dating from Cook's introduction of the orange, several varieties of mango, bananas, fei, etc., from Tahiti and other islands. But while the supply of food might and often did prove insufficient by reason of the tremendous population the islands had to sustain, the variety of flora was ample for native needs in every way.

The coconut palm served the inhabitants of the islands with a utility as varied as the cactus serves a Mexican: food,

drink—both hard and soft—oil, fiber for mats, baskets, and ropes, its fronds for thatching the huts and a score of minor services. And in whatever particulars of pliable usefulness the coco palm failed, the pandanus, with its soft, satiny leaf of great strength and durability, came to the rescue. Then, too, they possessed the *mei*, the famous breadfruit, which, fresh and "rotten," has been the staple food of the South Sea islands for centuries, and from whose bark much of the native tappa cloth was made. From the trunks of the massive, stately ti, or Marquesan mango, swift, graceful canoes were fashioned, each from a single hollowed log.

War clubs and tappa sticks were fashioned from the tou, a bastard ebony, heavy as iron and almost as unbreakable. From the mio, a rosewood, many of their bowls and paddles were made; also from the kokoo, one of the few trees which brave the tempest-swept coast between the bays.

From the pua the maidens gathered the white, gardenia-like blossoms with which to scent the coco oil; and the nuts of the ama, strung on oil-soaked fiber, gave the Marquesan his dim and fitful light o' nights.

Though rarely used by the savages, Nature supplied them with two poisons. The hutu, a magnificent tree, with gorgeous crimson tasseled flowers, produces a fruit resembling a large mango in appearance, which is a strong narcotic. This they sometimes used to stupefy fish by crushing the fruit and throwing it into the bay. From the root of the eva they could extract a deadly poison.

There grew also the beautiful hibiscus, the bamboo, the noni, the ena, a pungent native ginger, and many wonderful tropic flowers with which I am familiar only by sight and their native name and not enough of a botanist to classify.

DISEASE UNKNOWN WHEN THE ISLANDS WERE DISCOVERED

Several varieties of bananas, mammee apples, and yams belong to this period, but I believe the uma, or native sweet potato, was of later introduction.

The above incomplete list indicates how bountifully Nature provided for the needs of the Marquesan, save only in that his capacity for propagation at times outstripped her unaided ability to supply his demands.

Photograph by John W. Church

VAEHEHU, QUEEN OF NUKUHIVA, PRINCIPAL ISLAND OF THE MARQUESAS GROUP

She lives in state on the shores of the Bay of Pusa, with a number of men who work her copra, but are not royal consorts. The wrapper was donned for the photographer. This is the queen's bay, and no one can live there except her men and herself.

The omission from this list of any herbs, roots, or barks for medicinal purposes brings out a striking feature in the life of these savages, the more so as it is contrasted with their pitiable condition today. At the time of their discovery disease was unknown in the islands, so naturally no provision was made against it. Lacking poisonous reptiles, dangerous beasts, or insects to carry infection from some far-away land, the Marquesan lived in a state of physical health rarely found among other races.

While in all essentials the flora as well

Photograph by John W. Church

PREPARING FOR MARKET THE ONLY ARTICLE WHICH THE MARQUESAS GROUP SENDS TO THE OUTSIDE WORLD

The coconut palm not only furnishes the native with copra, his medium of exchange, but provides him with food, with drink, with the roof for his house, and the fiber for his mats, baskets, and ropes.

as the customs and habits of the savages in the islands were identical, in specific instances there was much variation. Trees grew in some valleys which were unknown in others; the whim or judgment of the tribal king instituted customs and proclaimed *tapus* unlike those in vogue among their neighbors; and even the language varied greatly throughout the group. Although the islands lie but 5 to 50 miles apart, ceaseless warfare prevented any affiliation among them, and it is the great similarity rather than the slight divergence in their mode of life that is worthy of comment.

It was with good cause that without exception the numerous discoverers of the group waxed eloquent over the Marquesan. He was a magnificent savage. Averaging six feet in height, with a muscular development any athlete might well envy, good features, and the clear skin and eye of perfect health, it is small wonder he aroused their admiration.

THE BEAUTIFUL MARQUESANNES

To describe the dainty, graceful Marquesanne as she unquestionably was will, I fear, lay me open to the charge of exaggeration. If so, I shall still be in good company. From Mendana to Stevenson, with Melville for good measure, her remarkable beauty was a source of surprise and admiration. Unfortunately, my personal observation has been restricted to a period fraught with sickness, misery, and mixed blood, but today the few young women in the islands bear out the claim made for the beauty of their maternal ancestors.

When women possess beautiful, luxuriant hair, fine eyes, perfect teeth, a slender, graceful form, a skin of velvet texture and unblemished surface, and these physical attractions are combined with a vivacity of spirit and action, exaggeration becomes difficult; and unless all chroniclers of the islands have for several centuries agreed to deceive the world, such was the Marquesanne; and so she is today when sickness has not diminished her charm.

FIERCE, CRUEL CANNIBALS

The men were fierce, cruel cannibals, whose chief occupation, aside from the indulgence of their amative proclivities, was the killing of both men and women of other tribes for gastronomic purposes.

The sentiment often encountered in other cannibals regarding their victims, such as devouring a brave enemy in the belief that the mantle of his courage will envelop the victor, or the interesting idea that it is better to eat your friend than to have him rot on the ground, would have found scant favor here. To paraphrase a popular author, "pig was pig," and the longer the better, to the Marquesan.

Each tribe had its *tiki,* or god, to whom its members tendered a somewhat casual worship. High up in the valley, usually in the gloomy shadow of a great precipice over which the sun rarely shone, they built their *Maie,* or sacred sacrificial grove.

Here, beneath the deep shade of the sacred banyan trees, was erected a series of terraces and platforms, the highest some 15 feet from the level of the stone-paved grove. This great *paepae,* often 100 feet in length, was large enough to seat comfortably — on their heels — the tribal king, his chiefs, and several hundred warriors.

In the center stood the *tiki,* a crude, grotesque image, sometimes of wood, but more often rudely carved from soft stone with tools of flint. A large stone oven stood at one end of the *paepae,* and here the priest, with his assistants, attended to the preparation of the feast. After the *piece de resistance* had been properly baked, certain ceremonies of a nature presumed to be gratifying to the *tiki* were performed. A leaf-lined bowl containing human eyes and other tidbits to tickle the royal palate were presented to the king, and the feast was on.

In the sacred grove were gathered the lesser ranks of fighting men and youths, who had not yet attained their spears. No women were present. For a woman to step inside the stone wall marking the limits of the *Maie* at any time was *tapu,* or taboo, and merited instant death. Nowhere, to my knowledge, in the South Seas—certainly not in the Marquesas—was the taboo against eating "long pig" ever lifted for the gentler sex; and it is safe to say that in the centuries past, mil-

Photograph by John W. Church

MARQUESAN NATIVES PREPARING THEIR FAMOUS DISH, "POIPOI"

This food, made of fermented breadfruit, is not to be confused with Hawaii's palatable *poi*. The Marquesan "staff of life" has an acrid taste. Together with raw fish, it forms the principal diet of the natives.

lions of women have lived and died in these islands in intimate touch with cannibalism, none of whom has ever tasted human flesh.

The all-powerful *tapu* was the "law and the prophets" of the Marquesan. His religion has perplexed every investigator who has attempted to understand it, possibly because there is so little to understand. The *tiki* had its priest, who ranked next to the king in power and was often consulted by him. How far, if at all, the will of the god, as interpreted by the priest, might limit the power of the king has never been solved. But the king's will was held sacred to a degree unbelievable in savages whose bump of veneration was almost a depression.

Certainly the knowledge that the breaking of the simplest *tapu* meant death acted somewhat as a deterrent, but all evidence and tradition points to the fact that a desire to obey the tribal law rather than fear of the punishment to follow its infraction was the mental attitude of the Marquesan.

Several well-established *tapus* existed in common throughout the group, although any of these could be lifted by the king of any valley for the public weal or private royal pleasure.

THINGS WOMEN WERE FORBIDDEN TO DO

Some of the *tapus* for the guidance of the women would, I suspect, incite a suffragette to spectacular wrath.

Without exception on any island, women might not eat "long pig";

Nor brown pig, a delicacy much enjoyed by the men folks in the absence of the longer variety;

Nor dally with bonita or squid, the two fishes most in favor with the Marquesan palate;

Nor, except on special occasions, eat fresh breadfruit, bananas, or coconut;

Nor could they go in canoes, a provi-

Photograph by John W. Church

SAILORS OF A TRADING SCHOONER WEIGHING COPRA

The trader makes 1,000 per cent or more on the goods given in exchange for this dried coconut meat.

sion to keep them from being captured by enemies lurking outside the bay

And a *tapu* savoring of Solomon in its wisdom, women could not weep!

The food prohibitions, with the exception of the ones relating to long and brown pig, were subject to change during periods of plenty. It is obvious that the intention was to reserve for the warriors the best of the season's delicacies in times when food conservation became necessary.

DROUGHTS MADE ROTTEN BREADFRUIT A NATIONAL DISH

And while there were no profiteers nor cornerings of the market in the Marquesas, it often happened that famine did threaten on one or all of the islands. Although their geographical situation indicates well-defined wet and dry seasons, and the encyclopedias kindly give them a "hot and moist" climate, the group is subject to prolonged droughts, in one recorded instance scarcely any rain having fallen in nearly three years. Just prior to my arrival one spring it rained for the first time in thirteen months.

These long droughts were responsible for a practice which eventually established rotten breadfruit as the national food of the Marquesas. When boiled or baked fresh, it is a very pleasant food, somewhat like a well-baked, mealy potato, but with more flavor; and it has always been the staple food of the islands. But while there were many trees, and they bore prolifically for three or four months during the year, there ensued a period of eight months between the ripening of the fruit and the next crop, and in times of extreme drought the trees often failed to bear at all.

From this sprang the rule against fresh breadfruit for women at certain times and the custom of gathering the fruit when green and burying it by the thousands and tens of thousands in huge

Photograph by L. Gauthier

THIS VIEW GIVES A FAIR CONCEPTION OF THE RUGGED BEAUTY OF THE SCENERY IN THE MARQUESAS

The church at the left is the old Catholic cathedral at Ataona. The village is lost in the tropical forest, which grows at the base of mountains rising nearly 5,000 feet above sea-level.

pits dug in the ground for this purpose. After the pit was filled it would be covered with a layer of earth and a stone wall, too high to be jumped by the wild pigs, built around it.

Every valley had several of these pits, guarded by *tapu* until the food supply ran short. Sometimes five years would elapse before necessity forced the king to lift the ban and open a given pit.

By experience, it was discovered that even ten years did not destroy the buried breadfruit. The once green outer rind turned black, and the contents presented a white, somewhat mushy appearance, fermentation beginning immediately after it was broken open. This, when ground in a wooden bowl with a stone pestle, would rise like a mass of fermenting dough and had the same sticky consistency. It had an unpleasant odor and possessed an acrid, bitter flavor decidedly unwelcome to the uninitiated palate.

This is the famous *poipoi* of the Marquesas, not to be confounded for a moment with the delightful *poi* of Hawaii, Tahiti, and other South Sea islands. The latter more nearly resembles the Marquesan *koehi,* a similar preparation of fresh breadfruit over which a cream squeezed from grated fresh coconut is poured. Centuries of eating the fermented breadfruit finally destroyed the Marquesan taste for the fresh fruit, and his principal food, together with his favorite varieties of pig, became the acrid *poipoi* and raw fish dipped in a bowl of salt water.

THE CARE-FREE LIFE OF THE MARQUESAN GIRL

It would be a grave error to conclude from the taboos mentioned that the life of the Marquesan woman was a hard one. I doubt seriously if a more carefree or contented maiden ever existed. Her domestic duties were light and agreeable. The furnishings of her thatched shelter consisted of a few pandanus sleeping mats—nothing more. Outside on the stone platform was an assortment of bowls, crudely carved by the men in their intervals from warfare. These held *poipoi,* fish, fruit, or whatever of food might be prepared for the one daily meal, at which the savages gorged to repletion.

Then there were dainty coconut shells, ground thin and polished by rubbing on stone under water, often carved, which held the coco oil and other preparations for the toilet, dear to the heart of the Marquesanne.

A community fire was usually kept smouldering in a fallen tree, where it would burn for weeks. Otherwise youths who were adept in fire-making from wood by friction would quickly furnish the housekeeper with a blaze in the small stone oven at one end of the terrace.

The making of tappa cloth was her only tedious occupation, and, as the girls always gathered in groups and discussed matters of interest to the feminine mind while they worked, I doubt if it proved more onerous than the modern sewing circle.

WOODEN HAMMERS WERE THE LOOMS FOR TAPPA CLOTH

The tappa was made from the bark of several trees, the breadfruit tree making the best quality. The manufacture of the fabric was simple. A sapling or branch two or three inches in diameter was used. The bark was slit with a sharp stone and peeled off, then cut in two lengthwise, each piece about 12 inches long. This strip of bark was then laid on a flat stone and gently but firmly beaten with a tappa stick, a short club with corrugated sides, until its fibers spread to an incredible length and width. While in this almost pulpy state, the next piece beaten out would be tapped into the edge of the first, and so on until sheets sometimes 30 and 40 feet square were made and joined without a seam. The cloth was then laid in the sun to bleach, its deep rich brown turning a creamy white in the process, after which it was sometimes dyed with vegetable stains.

The resulting fabric was a very thin but surprisingly durable one, to be used for loin cloths and girdles—when any were worn—for covering on chilly nights, and other household purposes. Its name, as will readily be perceived, is derived from the tapping sound made on the stone by the wooden pounder.

I have mentioned the use of coco oil by the Marquesans. Probably no race ever attained a greater skill in the art of mas-

Photograph by John W. Church

COPRA IS MADE BY SPLITTING THE COCONUT IN TWO AND SUN-DRYING IT ON THE GROUND OR ON ROCKS

sage—certainly none ever practiced it more constantly. The oil was obtained by filling large wooden bowls with the meat of broken coconuts and placing them in the sun. Into the oil thus drawn the intensely fragrant blossoms of pua or the seeds of the spicy, aromatic lime were thrown, scenting it with a delightful perfume.

MARQUESANNES WERE ADEPT IN THE ART OF MASSAGE

Men and women alike were daily massaged with this scented oil, every muscle being gently manipulated with a skill seldom found in a modern masseuse. Usually two or three hours were required for the operation. At its conclusion the skin was like velvet in texture, without a trace of oiliness. They treated their hair in a similar manner, and the wonderful, luxuriant tresses were probably due to the attention given them in the use of coco oil and massage.

To it also, I am sure, must be given credit for the clear skins and powerful muscular development of the warriors. Even today, disease-ridden as they are, it would be difficult to find finer specimens of apparent physical strength than one sees in the Marquesas.

BABIES SWAM BEFORE THEY COULD WALK

Beyond the preparation of the single daily meal, her massage, and such tappa or mat making as desire or necessity prompted, the life of the Marquesanne was devoted entirely to pleasure. The quiet bays and tumbling streams made ideal bathing places, and warrior and maiden alike were almost amphibious. Even the babies were taught to swim before they could walk alone.

Like all Polynesians, they were passionately fond of flowers, and many of their hours were spent in deftly weaving blossoms, leaves, and ferns into wreaths and necklaces to be worn during the day by their men and themselves. Strangely enough, among such a pleasure-loving

Photograph by John W. Church

ONE OF THE MAIES, OR SACRED GROVES, OF THE MARQUESAS

Back in the deep shade of the banyans is another terrace, on which the native *tiki*, or god, stood. Here the feasts which followed human sacrifices were held.

race there were no songs nor dances, if one excepts the remarkable hula-hula, which was essentially an amatory, terpsichorean debauch, usually the concluding ceremony of any fête or feast.

WHERE TATTOOING HAD BECOME A FINE ART

Both men and women were elaborately tattooed. Had I not unfortunately lost the color screen of my camera, I would be able to show photographically some of the really beautiful work done with the bone needle. The ordinary lens of the camera will not reproduce the blue figures on brown skin, so I am without photographic confirmation of their skill in an art for which they have been famous throughout the South Seas.

Usually there was but one tattoo artist for each tribe, and his apprentices lived with him. They used a set of needles made from human bone and the juice from the buds of the noni bush for color. Under his skillful hands, each maiden and youth of the tribe willingly underwent the torture of tattoo.

The amount of decoration varied according to rank, additions to the original designs often being made later in life; but always the legs were tattooed from ankle to thigh, and necklaces and bracelets were worn on the arms and throats of the maidens. The warriors were covered with geometric and spiral designs, except the face, which was divided into blocks of solid color like a chess-board. The squares on the faces of the chiefs were sometimes enclosed in an inverted triangle, the base running across the forehead and the point resting on the chin. This peculiar marking gave to the naturally mild countenance of the warrior an expression of extreme fierceness.

Much of the ornamentation of the women resembled fine lace-work, and, as their skins were usually a light brown,

Photograph by John W. Church

A MARQUESAN HOME ON THE ISLAND OF TAHUARA

The sides of the hut are made of breadfruit saplings and split bamboo, the roof a thatch of coconut-palm fronds. The forefathers of these sickly, somber-faced natives were fierce, cruel cannibals, whose chief occupation, aside from the indulgence of their amative proclivities, was the killing of both men and women of other tribes. The bodies of their enemies were served at feasts in the sacred groves of the islands.

Photograph by L. Gauthier

A SCENE POSED BY MARQUESAN NATIVES SHOWING THE KILLING OF A VICTIM TO BE USED FOR SACRIFICE AND "LONG PIG"

The unsuspecting savage is stunned by a blow from behind, and then carried to the sacred stone, where the operation is finished. When tribal warfare failed to yield a sufficient quantity of human flesh, the native priest selected members of his own tribe to grace a feast.

Photograph by John W. Church

A GROUP OF MARQUESANS RESPLENDENT IN THEIR NEW COSTUMES WHICH THEY HAVE JUST BOUGHT FROM THE SKIPPER OF A TRADING SCHOONER

Before the white man brought these machine-woven fabrics to the islands, the Marquesans wore aprons and skirts of tappa cloth, hammered from the bark of the breadfruit tree.

some of them about the shade of old ivory, the delicate tracery of the tattoo stood in clear relief.

TATTOO DESIGNS FOR WOMEN RESEMBLED FINE LACE

To one unaccustomed to the human form beautifully tattooed instead of clumsily concealed beneath the garments of civilization, it will possibly be difficult to convey its attractiveness; but to the many travelers who have become familiar with the sight of the South Sea natives, with their lithe, graceful bodies and marvelously tattooed skins, the unrelieved pallor of the white races seems sickly and uninteresting.

The period required for tattooing was from two to three weeks, during which time the tattooee was *tapu*—lived in solitary agony in one of the huts provided for the purpose, and awaited with stoical patience the subsidence of the inflammation and fever incidental to the operation of decoration.

It has been said that the tattoo was an institution in some way connected with the tribal worship; and for this reason the French prohibited it at the request of church dignitaries. This may possibly be true, but the Marquesan religion was at best but a casual affair.

THE MARQUESAN A LORD OF EASE

Although the Marquesan was averse to work of any kind, he could be industrious on occasion, as evidenced by the magnitude of his stone-work in the sacred groves, the hundreds of terraces in every valley, and the scores of canoes owned by each tribe.

In the fashioning and decorating of his war clubs, spears, and paddles he found leisurely employment for idle hours, and here his labor ceased. Even the trails through the villages would test the ability

of a mountain goat—or a Marquesan—but they were rarely improved. If a ravine was narrow enough for a fallen tree to span and the tree at hand, it was dropped across the ravine. Otherwise there would be no bridge.

Agriculture in any form was unknown. The natives took the bountiful variety of flora the islands provided, but to assist nature in any way by tilling or replanting never occurred to them. Content with their gratification of the desires of the day, the Marquesans took literally no thought for the morrow.

The ownership of land was a sort of community affair prior to the coming of the white man, and probably, like all things else, subject to the tribal regulation. Thievery or crime of any sort was unknown. Implicit obedience of the *tapu* was the only law. Within its pale their lives were regulated by customs evolved from their own desires, obviating any occasion for the envy, discontent, or ambition from which crime arises.

THE CURIOUS MARRIAGE CUSTOM

In the Marquesan language there were no words to express our conception of either love or jealousy, nor had these emotions any place in their lives. Their domestic relations have always been a very loosely defined system of polyandry. Each woman or girl—they bore children at the age of twelve—usually had two or more accepted "husbands," but there was an amiable custom of a temporary exchange of wives at any time without previous notice.

The marriage of the Marquesan maiden to the youth of her choice, however, was an interesting ceremony. A home for their occupation was built by their friends, and the various necessities for connubial happiness placed therein.

The maiden was taken in charge by several young matrons, to be massaged with perfumed oils and her hair and body decorated with wreaths and garlands of flowers. The youth was consigned to the ministrations of two older women, who rendered him a similar service, besides smoking him thoroughly with the fumes of sandalwood. At the appointed time the scented and garlanded pair were escorted by the village to their *fae,* or hut, where the king with much ceremony declared them *tapu* for two weeks.

For the period of the *tapu* none might speak to them or in any way disturb their honeymoon. Food was left each morning on their terrace, together with baskets of flowers to be woven into wreaths and garlands by the happy couple.

NO QUARRELS AND NO JEALOUSIES IN MARQUESAN HOMES

This was the single touch of romance in the life of the Marquesanne. Soon another husband, usually an older man, would take up his residence with the young people, in accordance with the tribal custom. Quarrels and strife among families thus constituted were unknown, and, to revert again to the present, where the same custom still exists, there are no records of any bickerings or killings over their women by the present-day Marquesans. Spiritual love, or even the desire for the exclusive possession of any woman, seems to have had no place in the philosophy of the Marquesan, nor was there any evidence of such a desire on the part of the woman.

As at all times the men far outnumbered the women, it is probable there existed a custom of killing a certain proportion of female infants in order to keep the population within bounds, as was done in Tahiti for many years.

Among a people who looked upon human flesh as the last word in gastronomic pleasure, it would seem reasonable that they should have employed any overproduction of women for their sacrifices and feasts; but, although they had no scruples about eating women and children of other tribes, their own were rigidly *tapu.*

THE LOT OF THE MARQUESAN CHILD

The attitude of the Marquesan toward children was one of impersonal but affectionate indulgence. Their loose polyandrous system precluded any certainty as to the father, and, in place of individual paternal affection, the savages looked upon all children as their own. The fact that a youngster happened to be born in the hut of Tehia, down by the bay, meant nothing in his young life. At the age of three he would probably have spent months at a time in huts up the

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THE DAYS OF THEIR TRIBE ARE NUMBERED

Marquesan girls with love flowers, or flowers of friendship, behind the ears.

valley, while Tehia would be mothering one or more belonging to some one else.

Children were welcome everywhere. There were few, if any, "don'ts" for them in home or village, and the valley provided an ideal playground for their active bodies.

This genial attitude was not confined to the children. Though fierce and unrelenting in warfare with other tribes, in their own villages the Marquesans were a mild and easy-going lot. Lacking the ambitions and desires which constitute such a large part of the mental make-up of civilized man, and free from any commercial or competitive strife, they simply failed to develop many unpleasant traits common to civilization, and remained to a great degree good-natured, impulsive children in their temper and conduct.

The peculiar contrast of their utter disregard for human life and lively sympathy for the living was clearly shown when victims were to be chosen from their own tribe. In times of stress, when unsuccessful in capturing enemies to satisfy the demands of their god or their own craving for human flesh, the king would decree the sacrifice of a number of his own men. The priest thereupon retired to his hut in the sacred grove, and after several days of fasting and prayer announced secretly to the king the names of the victims. These would be told to a like number of warriors, each of whom always awaited an opportunity to kill his man with a blow from behind, so that he died without knowing his selection as a principal in the ceremony.

AN EXPURGATED ACCOUNT OF THE MARQUESAN DANCE

No story of the early customs of the Marquesas would be complete without a brief — and expurgated — description of their one dance, the famous South Sea hula-hula. From Hawaii to Asia this remarkable exhibition of muscular and voluptuous endurance varies only in degree, and among them all the Marquesan was admittedly the past master of the art.

The hula usually took place at the mouth of the valley, where the level ground near the beach gave an opportunity for a greater number of partici-

pants, several hundred savages often taking part in the celebration. Their musical instruments were hollowed logs over which shark or pigskin had been tightly stretched. These were beaten by the musicians with the palms of their hands, filling the air with a pandemonium of sound. Bowls of *ava-ava* and *namu-ehi,* the two favorite intoxicants of the savages, were scattered about to refresh the flagging spirits and muscles of the dancers.

To try to visualize the contortions of the hula for one who has not witnessed it is to attempt the impossible. Trained to its art from early childhood, with perfect development and control of every leg and abdominal muscle, they dance for hours in a frenzy of passion, uttering hysterical cries and groans, and twisting their supple bodies in lascivious, obscene movements to the wild tom-tom of the pounding drums and the shrill, never-ceasing chant of the musicians.

Utterly exhausted, men and women will fall, gasping and inert, only to creep back again, stimulated by *ava-ava* and their reviving passion, and fling themselves once more into the throes of the dance. What their powers of endurance were in the old days I cannot say, though I have been told the hula often lasted twelve or fifteen hours. I saw one a few months ago on a beach at Uapu which began at 11 o'clock and lasted until dawn, six hours later.

MARQUESAN MAIDENS ARE THE ISLAND "DISTILLERS"

Two intoxicants more dissimilar than the ones most enjoyed by the Marquesan it would be difficult to imagine. Both are in high favor in other South Sea islands, but a description here may not be amiss.

The *ava-ava,* or *ava-ti,* so called in some valleys after the root from which it is made, is concocted by a method that would scarcely win approval from a student of hygiene. A sufficient quantity of the roots is given to several maidens of the village, who sit grouped about a large bowl. Each root is chewed by them until its fibers are broken up, when it is thrown into the bowl. This operation finished, water is poured over the pulpy mass, and fermentation, greatly stimulated by the saliva of the girls, begins at once. In a short time the *ava-ava* is ready for consumption. It has a distinctly soapy taste, unpleasant to the Anglo-Saxon palate, and is one beverage my patient and long-suffering stomach refused to entertain even momentarily.

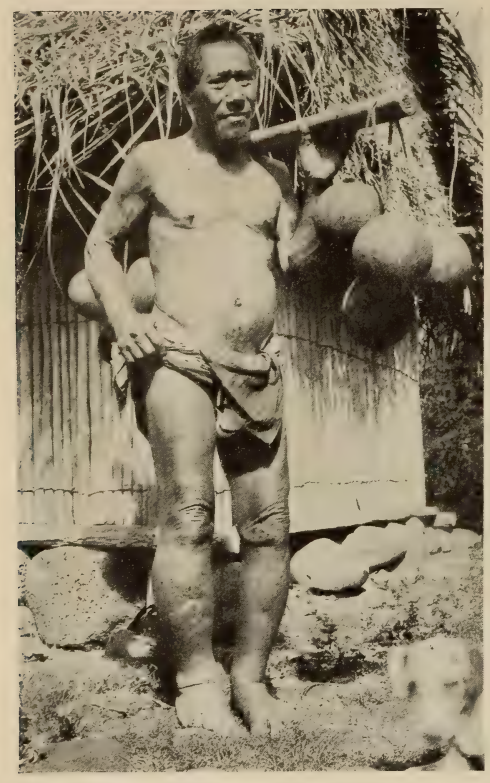
No such objection can be offered to *namu-ehi,* or, as it is more commonly known, *koko. Ehi* is Marquesan for coconut, and it is from the coco palm that this most insidious and delectable of all drinks is made. A tall coco palm that has been windblown so that its plumy top leans far out of the perpendicular is chosen. The buds, from which eventually fifty or sixty nuts would be produced, grow in a compact, oblong cluster near the top of the palm. The native climbs, or rather runs like a monkey on hands and feet, up the slender, swaying trunk, and, using long strips of bark or fiber, binds the cluster of blossoms tightly round and round, until the result resembles a huge, fat cigar protruding from the fronds. Underneath the point of this a bowl is suspended and the tip end of the wrapping sliced off.

For a day or two the native must possess his soul in patience and climb his tree several times to chip off the gummy coagulation which forms on the end of the imprisoned cluster. After the second day it begins to drip freely, but the end must be sliced fresh every twenty-four hours to stimulate the flow. In this manner a tree will furnish one or more gallons a day for several weeks.

When fresh from the tree the beverage resembles a delicious lemonade, with a flavor which would make the fortune of a soft-drink manufacturer who could reproduce it. Fermentation takes place speedily, however, and in a few hours your soft drink has "hardened" into a vicious man-killer that only a savage can go against with impunity. I speak from experience.

THE ADVENT OF THE WHITE MAN'S VICES AND VIRTUES

In the foregoing pages I have tried to depict the Marquesan as he was before the long arm of civilization laid a finger on his island home. His vices and his virtues were his own. No extraneous in-



AN OLD MARQUESAN BRINGING HOME A LOAD OF FRESH BREADFRUIT

His legs are enlarged from a disease known as *fefe*, a form of elephantiasis. The Marquesan has fallen upon evil days, fraught with sickness, misery, and mixed blood.

fluence could be praised or censored for either. Granting that he was a cruel, licentious cannibal, it must also be conceded that he approached the ideal combination of health, wealth, and happiness to a degree rarely, if ever, attained by any civilized community.

I have said that the coming of Captain Cook, in 1774, presaged disaster for the Marquesans. As a result of his previous voyages, Cook was more or less familiar with the life and habits of the Polynesians, and found no difficulty in winning the confidence of the savages in this remote group.

They welcomed the white men to their shores, and in return Cook brought them fruits and vegetables from other lands to add to their store of food. He introduced cattle, sheep, and goats on the islands, and made the warriors invaluable presents of iron and steel tools and knives. So far the famous English voyager is on the credit side of the ledger. But unfortunately there is a debit page as well.

A LAND OF NEGLECTED RESOURCES

Welcomed literally with open arms by the women and girls, the crew of his vessel left behind them a trail of disease hitherto unknown. Today great herds of cattle, sheep, and goats roam unmolested over the islands, while the Marquesan, when he eats meat at all, contents himself with the same pig which he held in high esteem long before the white man came; year after year the fruit Cook introduced rots on the ground, but the evil results of his visit have multiplied a thousandfold.

His report placed the Marquesas literally and figuratively "on the map." That was 145 years ago, and since then the history of the islands is the tragic story of a losing fight by a race of savages against a civilization represented in this instance by the whaler, the missionary, the trader, the "blackbirder," and finally their conquest and subjugation by a foreign power.

Let me say here, lest some of my missionary friends take exception to the company in which they are placed, that the arrangement is purely chronological. Several sporadic attempts were made from 1812 to 1860 to christianize the islands, but with the exception of the heroic Kikela, a native Hawaiian who came as a missionary to Hivaoa, these were, in the main, short-lived.

THE ARRIVAL OF THE FRENCH

In 1842 Admiral Du Petit-Thouars took possession of the entire group in the name of France, ostensibly to protect the missionaries in their labors for Christianity. Forts were built on several of the islands and troops installed to enforce French authority.

The ensuing fifty years is a record of desultory warfare between the French soldiers and the Marquesan warriors, in which the latter, always at war with each other and poorly armed, were constantly defeated; of "blackbirders" from North

Photograph by John W. Church

THE THREE WOMEN SHOWN IN THIS PHOTOGRAPH ARE THE ONLY ONES IN A VILLAGE OF THIRTY MEN AND BOYS

The decrease in population throughout the islands is at least eight deaths to every birth. It is predicted that in another decade not one full-blooded Marquesan will be alive—a pathetic commentary upon the cost that the savage has paid for a civilization which he has never been able to assimilate. The South Sea Islander has learned to practice few of the white man's virtues, but has been an apt pupil in adopting many of his vices.

and South America who raided the weakened villages and sold the men and women into slavery in far-off lands, and of the frightful ravages of smallpox, tuberculosis, leprosy, and other contagions among a people who had never known disease.

THE TERRIBLE VISITATION OF A SMALLPOX EPIDEMIC

One instance, terrible in its consequences, may be cited as an example. About 1861 a Chilean blackbirder, who had raided several of the bays on Nukuhiva and Uapu, was captured off the Peruvian coast by a French warship and the Marquesans recovered. While bringing them back, smallpox broke out on board. The savages, ill with the disease, were put ashore in a bay on Nukuhiva. Some of them were from Uapu, and these took canoes and paddled 30 miles across the ocean to their home. In less than three months some 5,000 of the natives on Uapu had died of smallpox, almost depopulating the island. Nukuhiva also suffered greatly before the unchecked epidemic ran its course.

In their sincere but often misguided attempts to convert them, the missionaries added greatly to the misfortunes of the Marquesans. They successfully appealed to the French to assist by force in destroying all customs of the natives not in harmony with the Christian religion as they interpreted it.

Native gods were overthrown; tattooing, the hula-hula, and the making of *ava-ava* and *koko* were prohibited; and of course any further indulgence in "long pig" was strictly forbidden. Persistent efforts were made to regulate their domestic life, but these naturally met with unqualified failure.

Though dazed by the swift destruction of his economy of existence by the white men, the Marquesan doggedly refused to submit to their authority. The French

Photograph by John W. Church

A SCENE TYPICAL OF THE NATURAL BEAUTY OF THE MARQUESAS: THE TREES IN THE FOREGROUND ARE COCO PALMS

The islands are of volcanic origin, and present, in curious contrast, jagged, cloud-piercing peaks and mighty precipices embracing valleys of marvelous tropical verdure. Ravines fairly choking with prolific masses of bloom and foliage abound.

Photograph by L. Gauthier

THE FAES, OR HUTS, OF THE MARQUESANS ARE BUILT UPON STONE PLATFORMS KNOWN AS PAEPAES

Three centuries ago the Marquesas Islands teemed with a healthy, happy people. Today there are thousands of *paepaes*, no longer in use, which cling to the sides of valleys and ravines in a perfect state of preservation. The platform is usually from 30 to 40 feet in length and 20 feet broad, level and unbroken, and often walled up to a height of 10 or 15 feet on one side, according to the slope of the site.

could proclaim their prohibitions, and with their troops enforce a certain outward obedience in a few villages, but the natives as a whole have clung with sullen desperation to the customs of the past.

HOW KIKELA SAVED AN AMERICAN FROM THE CANNIBALS' POT

I have mentioned the missionary Kikela, and no account of the islands should overlook one incident of his career. Himself a full-blooded Polynesian and sincerely intent upon the conversion of the Marquesans to Christianity, he came to the Bay of Puamau about 1858, and labored faithfully, although futilely, with the fierce tribe which inhabited the valley.

The savages have never been partial to "white meat," and it is probably due to this fact that many whalers and traders escaped the oven. But during Kikela's residence at Puamau a blackbirder had succeeded in carrying off several men and women, and the warriors swore vengeance on the next ship which entered the bay.

This chanced to be an American whaler. The first mate, a man named Whalen, went ashore with a boat for water and food. The crew succeeded in getting back to the ship, but Whalen was captured, and preparations were at once begun for converting him into "long pig." Kikela protested loudly and long, but the king and his warriors gave him scant attention. The combination of revenge and food was too seductive to be overcome by religious argument. Finding his pleading and wrath of no avail, Kikela rushed to his hut, returning shortly with his two most cherished possessions, a muzzle-loading rifle and an old black frock coat, the treasured badge of his clerical office.

THE MISSIONARY'S LAST TRUMP

These he offered as a ransom for Whalen. The king wavered. He had long coveted that coat, but "long pig" was scarce and revenge was sweet. Kikela had one last trump, a large, ornately carved canoe recently completed by the best boat-builder of the bay. In desperation he offered it also—and won.

Garbed in Kikela's frock coat, the gun on his shoulder, the king ordered Whalen released, and with much ceremony escorted him to the beach. Kikela restored the mate to his schooner with a suggestion that a speedy departure from the bay would be the part of wisdom. Needless to say, the advice was instantly acted upon.

On his return to the United States, Whalen made public his thrilling experience; whereupon President Lincoln, in the name of the American people, sent Kikela a written testimony of their appreciation of his act and a handsome gold watch appropriately engraved.

Kikela has long since gone to his reward, but the watch, no longer a timepiece, is still an object of admiring veneration in the hut of a brother who later followed him from Hawaii and now lives on Uapu, where I saw the interesting souvenir a few months ago.

A MARQUESAN MIRACLE—THE LEGEND OF UAPU'S SAND-FLIES

It was on this island of Uapu that a latter-day miracle occurred some fifty years ago. In some unknown way two bays in the Marquesas, that of Hatiheu on Nukuhiva and Hakahetou on Uapu, became infested with a tiny but extremely vicious sand-fly whose bite when scratched becomes an ulcerous sore. The natives suffered constantly from the pest and could find no relief.

Finally, the king of the tribe, when he was about to die, called his few remaining warriors about him and announced that, although he had not been able to spare them from sickness and misery during his life, owing to the greater power of the white man's gods, he could by his death reëstablish his prowess, and he would demonstrate it by taking with him all the sand-flies on Uapu.

That night he died, and by morning every sand-fly had disappeared!

Not only the Marquesans, but the white traders and French officials, vouch for the fact that there *were* sand-flies on Uapu; that the king *did* say he would take them with him, and *I* know that they are not there now; and further, deponent sayeth not.

Unfortunately, Hatiheu was not included in the king's domain, and I have unforgettable recollections of the diminutive pests in that bay.

During the first fifty years of French occupation there was a really sincere effort to convert the Marquesan and make him an industrious Christian. Small churches were built in several of the bays, and later a tiny cathedral at Ataona with a bishop, and a convent in which the nuns were to instruct the savage maiden in civilized arts and manners. With the assistance of the French officials, schools were conducted by the priests, and under the forceful persuasion of soldiers the fertile bays planted to coco palms and the copra industry begun.

As the making of copra consists merely of splitting the ripe coconut and permitting it to sun-dry for a few weeks, this did not entail any great amount of labor, and it has become the sole industry of the islands.

From 1850 to 1870 several efforts to raise cotton were made by colonists, who came assured of French authority and protection, but these all failed, and some of the colonists and their imported Chinese laborers lost their lives.

REJECTS CIVILIZED CUSTOMS AND LOSES HIS OWN

After quelling the rebellion on the island of Hivaoa thirty years ago, the French withdrew their military establishment and practically abandoned the Marquesan to his fate. A semblance of control is kept up with an administrator and one or two other officials at Ataona and a few gendarmes scattered about the group.

The schools have disappeared, with the exception of a little palm-thatched hut in Ataona, where a few children, French half-breeds for the most, sometimes have a teacher.

The little convent at Ataona still houses four delightful old ladies, the fearless nuns who came to this savage land more than thirty years ago, but there are no classes now for them to instruct in maidenly arts and deportment.

Not only does the Marquesan refuse to receive the white man's culture; he has lost his own as well. His vices he has retained and added to them those of the race which conquered him, but his own peculiar arts and virtues have disappeared. The making of tappa cloth ceased, save in rare instances, many years ago, to be replaced by the cotton cloth of the trader. In Ataona and a few other villages the priests succeeded in forcing the Marquesanne to cover her body with a hideous nightgown effect, which some of them wear when the priest is about or a trading schooner comes in, and a more unsightly or incongruous garb has never been devised.

TATTOO ARTISTS AND WOOD CARVERS HAVE VANISHED

There has not been a paddle or a *poi-poi* bowl carved for a generation. The famous tattoo artists are dead, and with them died their art. In some of the bays I have seen some of the young men partially and poorly tattooed, but the really beautiful work still to be seen on the bodies of all the older men and women has passed forever.

The making of *namu ehi,* koko gin, goes on with but slight interruption, and to it has been added a vile beer made of fermented oranges or bananas, and alcohol in any form they can procure from an occasional trading schooner. I was somewhat puzzled at the Marquesans' great craving for perfumes and toilet waters until I discovered that a four-ounce vial of "Mary Garden" was merely a Marquesan cocktail, and a pint of Florida water rated as a fair quality of gin.

While the little schooner which took me to Tahuata was lying in the Bay of Vaitahu, a fierce old chief, tattooed from head to foot and wearing a head-dress of human hair encircled with chips of bone and shark's teeth, paddled out and boarded us. He threw a lot of five-franc pieces on the table and demanded strong waters.

A CHIEF WHO WAITED IN VAIN

The skipper, an old South Sea trader, was equal to the occasion. He produced a long black bottle containing about two quarts of liquid and sold it to the chief.

"Don't drink it here," he told the old savage. "You get me into trouble. Take it ashore, drink it, wait three hours, then you get fine drunk." This, of course, in Marquesan, as few outside the village of Ataona understand any language but their own.

Photograph by John W. Church

A PERI OF THE MARQUESAN PARADISE

To the Spaniards under Mendana, who discovered the Marquesas Islands in the sixteenth century, the archipelago seemed an enchanted land of delight. According to tradition, a number of Mendana's crew, enraptured by the beauty of the native women, fled to the hills with a score of the most attractive maidens, and there they lived happily ever after. From this adventure, so runs the legend, there sprang a tribe of beautiful red-haired women and fierce warriors. Several native women and boys with rich auburn hair are to be found on one of the islands today.

Photograph by Martin Johnson

A DANDY OF THE SOUTH SEAS

Three thousand or more years ago there was a great migration from the Asiatic Archipelago which peopled the numerous groups of islands of the South Pacific with cannibal savages of kindred Polynesian blood.

The chief went ashore with his bottle of harmless grenadine syrup, and I with him.

Within an hour he had consumed the entire contents, and sat somewhat impatiently awaiting the promised drunk. Meanwhile the schooner sailed quietly away.

By sunset I was watching an ebullition of disappointment and unbridled rage by a stone-sober cannibal chief that left nothing to the imagination of his audience. Skippers of trading schooners rarely go ashore in these bays, and I am inclined to believe their judgment good.

The last official recognition of cannibalism here was many years ago, but of unofficial reports and rumors there are many, the latest less than two years ago.

THEIR CANNIBALISTIC APPETITES STILL SURVIVE

There is no doubt that the Marquesans today are as fond of "long pig" as in the years past, but the opportunities are greatly decreased and the penalty of transportation and long imprisonment certain should they be caught. Nevertheless there are several villages where tribesmen from other valleys will not go even now unless in force; and their wisdom is bred of experience.

Only six of the eleven islands are now inhabited, and but a few villages on these. The valley of Taipi, on Nukuhiva, made famous by "Typee," Herman Melville's beautiful classic of the South Seas, is now given over to the silence of the jungle. It was difficult to realize that this utterly desolate valley, where nothing now remains save the terraces hidden beneath a rank tropical overgrowth, was, less than a century ago, the home of many thousand savages leading the carefree, luxurious life Melville has described so picturesquely.

The French official *Annuaire des Etablissements Francais de l'Oceanie* for 1915 — the figures were compiled in 1914—gives the population of the Marquesas as 3,004. I have recently completed a journey throughout the islands, during which I visited every inhabited bay and village. My count gives a population now of 1,950, a decrease of more than 33 per cent in less than five years!

THE VANISHING RACE

The official report gives sixty known cases of leprosy, and I saw considerably more than that number scattered about the six islands. The actual proportion of lepers to the population will never be known, but it is very large. As leprosy takes years to develop to a degree where it can be detected readily, many who are now afflicted with the dread disease without knowing it will die of other causes in the next few years. Admittedly, the ravages of tuberculosis and other insidious diseases are beyond any hope of enumeration.

The average death rate throughout the islands is at least eight deaths to one birth, and in many villages runs higher. The ratio of men to women is about seven to one, and they live in practically the same communal polyandry as in the old days.

With these vital statistics available, it can be seen that not only are the days of the Marquesan numbered, but the number is exceedingly small. I do not believe that there will be a full-blooded Marquesan alive in ten years. M. La Garde, administrator of the group for 1906-7, agrees with me in this conclusion.

There can be no doubt whatever that today this drunken, disease-ridden remnant of the Marquesan race is beyond redemption; and all the French colonial administration can do is to pursue its present policy of nominal supervision and let the natives die off as speedily as possible.

As I stood for the last time in the beautiful valley of Puamau, looking through a tropical forest of fruits and flowers to the quiet bay far below, I could but ask myself the question: If prophetic vision had been granted Captain Cook would he not have sailed silently past the Illas Marquesas de Mendoza? I wonder!

A MEXICAN LAND OF CANAAN

Marvelous Riches of the Wonderful West Coast of Our Neighbor Republic

By Frederick Simpich

Formerly American Consul at Nogales, Author of "Where Adam and Eve Lived," "Mystic Nedjef, the Shia Mecca," etc.

"VAMON-O-O-S!" yelled the conductor, and the long mixed train for Guaymas started with a jerk. From the tail of its caboose I looked back at Nogales, sun-bathed and lazy, sprawling indolently astride that historic line called the Mexican border. From beside us, as we gathered speed, tin-roofed adobe shacks and groups of loitering peons slid back into the wood-smoke haze that hinted at native breakfasts of beans and burnt coffee.

From a wayside corral rose a burst of oaths and clouds of dust, as into its "dip-tank" yelling cowboys urged a herd of sullen steers; a mad tangle of hoofs, horns, and tails they were, but Uncle Sam says incoming cattle must take this creosote bath, lest they carry fever ticks that might injure our own source of T-bones and prime ribs *au jus*.

Past stunted live oaks we glided and into a shadowy canyon, its sloping sides marked with cow-paths like terraces. Up a stony trail a mule train plodded, packed with cases of dynamite, bags of flour, and provisions, bound for a mine hidden somewhere in the distant blue hills of Sonora—hills of incredible riches. And far to the south of us, for a thousand curving, twisting miles, the pioneer railroad pushed its way, down into that Promised Land of Mexico, the far-flung famous West Coast.

WHERE THE COLORFUL LIFE BEGINS

The change in plant and animal life and industries as you pass from Arizona into Mexico is very slight for the first 200 miles or more. Had they not searched your trunk at the custom-house, and maybe charged you duty on that new camera, you might not have realized that you had crossed a frontier. It is only after you quit the high, rolling grassy ranges of northern Sonora and strike the Yaqui valley below Guaymas that a new world reveals itself. Here the bright, colorful life of the vast coastal plains begins.

Flocks of screeching green parrots flap noisily overhead. Skulking coyotes twist swiftly away into the *palo verde* bushes. At dusk spotted bob-cats lurk in the brushy trails, stalking rabbits. In smoky Indian camps along the railway Yaqui troops are on duty, patrolling the line against their wild brothers of the hills. One sees them making sandals from green cowhide or cutting a beef or a burro into strips and hanging the meat up to dry. From their outposts come the dull signal-beats of their tom-toms. "The sound of that drum always gives the enemy an earache," a Mexican officer told me.

A LAND OF WONDROUS LURE

Beyond this Yaqui zone lie the vast level plantations of cane, corn, beans and tomatoes, and that important Mexican crop, the "garbanzo," or chick-pea.

It is a land of wondrous lure, rich in romance and adventure, is this magic West Coast. From Acapulco to Arizona the impious bones of buccaneers are strewn; and along this same age-old Aztec trail intrepid padres fought their way, building fort-like missions and carrying the cross to arrogant Apaches and pagan Papagos. From Cortez and Sir Francis Drake to the American miners and planters of today it has drawn restless men from the world's far places and ensnared them with its subtle charm.

Millions in gold and copper have been

Photograph from G. M. Ker

OFF FOR MARKET

To the Mexican peon mind it is the hat, not the clothes, that makes the man. He may go barefoot and in tatters, but if he has his hat, which combines the flare of a Merry Widow with the exaggerated dome of a Derby, he will greet you with simple dignity and spontaneous cheer, betraying no rankling against a state of virtual serfdom owing to the land-tenure laws of Mexico.

wrested from its hills and fortunes in pearls fished from the hot waters of its gulf. Out of a lonely gulch in Sonora, Indians once took a nugget of 600 pounds, a chunk of pure silver so heavy it had to be carried away on a platform slung between two stout mules.

"The Mineral Storehouse of the World," Humboldt called Mexico; and a tale is told at Ures of one Señor Almada, who, on the occasion of his daughter's marriage, lined the bridal chamber with silver plates and paved the path from his house to the church with the same pale, chaste metal!

A FERTILE, UNKEMPT GARDEN

Yet if this West Coast were robbed today of all its gold and silver, its copper and graphite, it would still remain one of the prize regions of earth, a vast unkempt garden of startling fertility, alive with wild animals and birds—a Mexican Eden, where life is simple and easy. As one idler phrased it, "In Sinaloa you can kick your breakfast off the trees any morning in the year."

Of ranches and plantations there are many, of course, especially in the watered valleys; but the coast country as a whole is largely undeveloped, vast areas being still covered with jungle brush and wild grass.

The very richness of the mineral deposits and the fact that for generations the Spaniards worked only the mines, pausing neither to sow nor reap, tended to keep the country back. Indeed, as one old Mexican wisely said, "If all the work that's been done in our mines since Cortez went prospecting had been put to plowing and irrigating, we'd be raising grain enough now to feed fifty millions, instead of having to import flour and corn from the United States."

Ever since the Children of Israel set out for Canaan a certain inexorable law has led restless men of all races to seek homes where soil and climate make life easiest. Hence, indisputably and inevitably, a tide of migration must some day set in to this West Coast, just as it once flowed into our own empty west and into Canada. Mexicans alone cannot settle it and bring it to full fruition, for there are not enough of them, and they achieve better results with the stimulus of foreign aid and example.

Already hundreds of pioneer colonists—Americans, Chinese, and a few Europeans—are settled here. As merchants, miners, and planters, as doctors, engineers, and manufacturers' agents, these foreign residents are scattered all down this coast from Tia Juana to Tehuantepec.

In the Yaqui Valley one American corporation, originally organized by two far-seeing financiers, has already worked an agricultural miracle. Aided by American soil experts, plant wizards, and advised by such men as built the Roosevelt dam, it has cleared and watered thousands of acres and established a pioneer American colony.

The shallow, weed-choked irrigation ditch that the Indians knew is replaced by long, deep canals with miles of laterals and take-offs, and giant dredges now move tons of mud a day where once the peon toiled with his frail shovel. Oil-burning tractors and marvelous gang-plows have crowded out the crude implements and scratching sticks of a decade ago.

In other places and in other ways the American immigrant's influence is setting up a higher standard of industrial and social life. At Nacozari, Sonora, a Yankee mining company has built a free club and social center for its Mexican employees; there are baths, pool tables, a library of Spanish and English books, and current periodicals.

Strikes have never disturbed this camp. Its American managers are required to learn the language of the country, to study the psychology of the people, and to respect their customs and traditions. When one of this company's native engineers sacrificed his life in an explosion to save many fellow workmen, the company named the town plaza in his honor and built a monument to his memory.

SONORANS "THE YANKEES OF MEXICO"

Here in Sonora the American idea has taken particularly deep root. Mexicans from other States call these Sonora natives "the Yankees of Mexico" because of their thrift, advancement, and close relations with the Americans. Practically

Drawn by R. M. Parker

A SKETCH MAP OF THE WEST COAST OF MEXICO AND THE PENINSULA OF LOWER CALIFORNIA

all families of the merchant and ranching classes send their children to schools in the United States.

These youngsters, returning to Mexico, are proud of their English (and their Yankee slang). They wear American-made clothes, dance all the popular "steps," and display an understanding of American ideals which can only make of them more friendly and helpful commercial neighbors in the years to come.

Even now the average home in northwest Mexico is largely furnished with American wares—the Yankee sewing-machine, the piano, graphophone, kitchen range, brass bed, and baby carriage are everywhere. And from Uncle Sam's factories our Mexican neighbors get most of their ready-made clothing, their shoes, hats, vehicles, farming implements, canned foods, and sporting goods.

SPANISH TAUGHT IN SCHOOLS A HOPEFUL SIGN

"The truth is," said a Mexican of my acquaintance, "we understand you Americans better than you understand us, because so many of us speak English and have lived or visited in the United States. Take my own case: I was educated in California. When I returned to Mexico as a young business man, I obtained the agency for certain American farm implements, and in a few years I was worth a million pesos.

"Plenty of American salesmen came to my part of the coast, competing with me, but I sold more plows and wagons than all of them put together, because I knew the language and mental processes of both races. Hire an interpreter and you hunt trouble. No man trusts another when he can't understand him. I've noticed it often.

"A hopeful sign of better relations between Mexico and the States, to me, is the fact that so many of your public schools are now teaching Spanish. Keep it up. It will help us to become better business friends."

A SHIP, A CARGO, AND A MARKET

It is said that in 1498, when Vasco da Gama sailed around the Cape of Good Hope to India and returned to Portugal with a cargo of spice and pepper, he made 6,000 per cent on the investment. There is more competition in the commission business now and profits are more modest than in Mr. da Gama's day, but the factors are the same—a ship, a cargo, and a market. And this coast is peculiarly our field. Our Panama Canal put it on one of the world's greatest highways; and our freighters, cutting the wake of the romantic galleons of old, now call at Guaymas, Mazatlan, Acapulco, and other West Coast ports. Already the trains that crawl down from the border are loaded with American machinery, dry goods, groceries, and everything the Mexicans need. It is our market now, linked with us by rail and sail, and we must keep it.

WHERE THE COW-MAN IS KING

The ratio of meat-bearing animals to human beings is probably higher in Mexico than in any other country, because so much of the land is fit only for grazing. Every year we Americans eat thousands of imported Mexican cattle, and in years to come we shall necessarily buy more and more beef from below the Rio Grande. Cow-men from our Western States long ago ventured into Mexico, and on its vast, unfenced ranges some Americans have built up enormous herds.

On one great American-owned ranch about 15,000 calves are branded every spring. In Sonora a certain Yankee cattle company's holdings are divided into nearly 200 pastures, and when the overseers motor about they carry with them a map of the ranch, showing the different trails, fences, and pastures. To make a complete inspection of the property a week's time is required. In many places water for the stock is obtained from wells equipped with wind or gasoline pumps. Little feeding is done, as the cattle can graze the year round.

Many of the same forage grasses that cover the great Arizona ranges are also found in Sonora and Sinaloa. The beans of the mesquite tree are likewise very fattening, and it is no uncommon sight to see a Mexican heifer stand on her hind legs and reach for the higher twigs of this succulent bush.

In some of the mountains many so-called "wild cattle" roam at large, un-

Photograph from Frederick Simpich

HUGGING THE HOT RED ROCKS, GUAYMAS, MEXICO, REMINDS ONE OF ADEN, ARABIA

The barren hills behind the seaport act as gigantic reflectors of the tropical summer heat, which the residents combat with thick-walled houses and tightly closed shutters. 'The contrast of the wide cobalt of gulf with the wide, flaming sky above it is most violent, imposing, awe-inspiring."

Photograph by Harry A. Lawton

THREE "REBEKAHS" OF SINALOA

The complexion of the average Mexican girl inspires admiration or envy on the part of the visitor from the north, but the women of the peon class marry young, have a surprising number of children, and generally are faded and wrinkled at thirty-five.

Photograph from Frederick Simpich

THE AUTHOR AND THE CHIEF OF THE SERIS

Chief Juan Tomas, who rules the destinies of a tribe of degraded, poverty-stricken Indians inhabiting the island of Tiburon, in the Gulf of California, is the son of a Papago and of a Spanish girl who was kidnaped on the mainland many years ago.

Photograph from Frederick Simpich

GRINDING CORN ON A METATE TO MAKE TORTILLAS

The tortilla is the staff of life in a Mexican family. It is a sort of baked pancake, made of maize flour after the flour has been boiled with lime or water, and the resultant paste ground to a proper consistency on the *metate*, a volcanic stone in the shape of a druggist's mortar. A second stone serves as a combination pestle and rolling pin.

branded and free, timid as deer, they or their forebears having strayed from the unfenced ranches. In spite of the many milk cows at large, in all these ranch homes condensed milk is generally used. To rope, throw, and milk one of the wild cows is rather an exciting task, and frequently "Mollie, the kind-faced cow," will, when released, promptly chase her captors up the nearest tree.

AMAZING DIVERSITY OF PRODUCTS

No other crop on the West Coast is more talked of than the garbanzo, or chick-pea. Each season buyers come all the way from Spain, Italy, and Cuba, where most of these peas are consumed, and bid against each other, and, till the price is finally fixed, the excitement among the native growers is intense. The annual crop is worth several millions and is shipped out by rail through the United States.

Tomatoes, too, come from Sinaloa in hundreds of carloads every winter and find a ready market in our western cities. Rice and sugar, grown on the West Coast, are largely consumed in Mexico.

Each sugar-making season a corps of American experts goes to the West Coast from the mills of Louisiana to handle the crop of one of the American plantations. The taxes paid to the Mexican Government each year by this one sugar company alone represents a large fortune.

Wild coffee thrives on the hill slopes of Durango—a small but deliciously flavored berry—and thousands of natives gather their annual coffee supply from these uncultivated bushes.

THE BAT HUNTERS

One odd class of prospectors makes a good living hunting bat caves. In the hill countries of Sinaloa and Sonora the Mexican bat breeds by the thousands,

and makes its home in caves among rocky cliffs. Here deposits of guano accumulate, small fortunes being sometimes realized from the sale of one cave's deposits.

To locate a bat cave these guano-hunters work much as do the backwoods bee tree hunters in Missouri. They seek out a likely cliff, wait till dusk, and watch for bats. Soon, by close observation, they can locate the cave entrance from which the bats emerge. This bat is small, with flat head and broad ears, and gives off a musky odor.

That bright-red dye in the paper on your library wall probably came from away down in Sinaloa. But you would hardly have recognized it had you been at the receiving station in Culiacan the day the mule train got in from the hills, each animal carrying his 300-pound load of short, brown logs. It is in this form that the dyewood is shipped to the States, where it is ground and boiled. About 15 per cent of its original weight is soluble in water and represents dye matter and tannin.

Uncle Sam also colors much of his army khaki cloth by the use of Mexican fustic dyewood, which likewise comes from Sinaloa. The Yankee buyers in Mexico bargain for the wood delivered at the railway, where they take only the hearts of the logs, with the bark and sapwood chopped off.

There are extensive forests of this hard, heavy, dense wood in Sinaloa, and the railway company prefers it for making ties. Because of the tannin in it, the bugs, white ants, and other insect pests do not eat it; its durability in the ground is remarkable. One small railway line put in fustic wood ties 35 years ago, and they are still sound. This tree belongs to the mulberry family.

A FARM LESSON FROM MEXICO

Not long ago one of our farm lecturers at Columbia University was telling of some new wrinkles in farming that he had picked up on a trip through Mexico.

"One of these," he said, "was a variant of our recently adopted system of green manuring that I first saw practiced on a Mexican bean ranch. The bean vines were cut off with hoes just under the surface and the roots allowed to remain there to rot till the next planting time.

"The Mexican had never heard of putting nitrogen into his soil and was merely following the formula he had learned from his Spanish and Indian ancestors, but he was doing effectively just what thousands of American farmers have learned in the last generation to do—increase fertility by growing nitrogen-gathering legumes. But he did not stop there. All the bean vines, hulls, weeds, and field trash were raked into piles and were soon as dry as tinder. Each of these piles was buried with earth to a depth of perhaps six inches, so that the whole field was covered with mounds from two to four feet high.

"In due time an opening a foot in diameter was dug at the base of each mound, and the dry vegetation inside set afire. Then the hole was closed till barely enough air could enter to keep the fire smouldering, but not blazing, and the smoke filtered through the loose earth above till the whole field had the appearance of a nest of miniature volcanoes.

"After a few days all the combustible material had burned out of the mounds and they were broken down and scattered. From the Mexican rancher I learned that the practice had always been followed by good farmers in Spanish America and that it had been brought from Spain in the earliest times."

MORE TRANSPORTATION IS NEEDED

Until recent years this coast zone was utterly cut off from the rest of the world except by sea. Even now no railway, and not even a passable wagon road, runs east and west across northern Mexico. In fact, few rich, civilized regions anywhere have so few miles of railway, in proportion to their area and importance, as this West Coast of Mexico.

The north and south traffic is served by only one road, that of the Southern Pacific of Mexico (owned by the American company of the same name), whose railhead in 1910 had been pushed as far as the picturesque old city of Tepic. Here, at the beginning of the Madero revolution, construction work was suspended.

Eventually this line will be built

Photograph from Frederick Simpich

AN INDIAN GIRL WASHING CLOTHES IN THE YAQUI RIVER: MEXICO

This is a daughter of one of the poorest and wildest Indian tribes of northern Mexico. The Yaquis are comparable to the Apaches. They could never be accused of godliness, but cleanliness among them, as among the Mayas, to the south, is a highly developed virtue. Note the Yaqui clothes-drying device, which makes every laundry day a fashion show.

Photograph by Harry A. Lawton

IN A THIRD-CLASS COACH AT CULIACAN: SINALOA

No straps on which to hang in this common carrier. Just sit in your neighbor's lap or on the window sill.

Photograph by Dane Coolidge

"PUTTING ON DEER HORNS"

A favorite gesture of the Yaquis, the tribe that long has constituted the most lawless element of Sonora and has figured in many of the forays at the border town of Nogales. Even under the Diaz régime the Yaquis refused to recognize the Mexican Government. This attitude led to the assignment of troops to exterminate them, but since these troops received extra pay they were provident of a good job, and no great inroads were made upon the rebels.

through to Guadalajara, and thus connect San Francisco and Mexico City by a direct route. And, if an original plan is carried out, the line will be extended to Salina Cruz, the West Coast terminus of the Tehuantepec Railway.

Just now this latter 1,100-mile stretch of fertile coast country is without a railway service to the north, and European freight arriving over the Tehuantepec Railway must be hauled by water up to Manzanillo and Mazatlan.

Wagon roads, too, are almost utterly lacking. Interior freight is carried largely by burros. In its more prosperous days thousands of pack-mules were used for carrying the back-country trade of Mazatlan alone.

THE ENGINEER WHO LOST HIS CAP

During the last year of the Great War the towns of western Mexico suffered no little hardship through lack of transportation; for weeks at a time not a vessel called at once busy ports like Guaymas.

Life among American merchants and planters settled on this West Coast is not unlike that of the colonials in India, China, or the Philippines. Servants are numerous and cheap. Fruits and vegetables grow in abundance. Nobody hurries. Nervous breakdowns and "worry" headaches are unheard of.

Even the leisurely trains reflect the "mañana" spirit. Not long ago I was a guest in the private car of a railroad official. We were running as a special, but seemed to be moving strangely slow even for a Mexican train. "Go up ahead," the official told our brakeman, "and tell the engineer to speed up a little."

In a few minutes the brakeman came back and explained:

"The engineer says that coming up last night his cap blew off and went out the cab window. He wants to run slow going back to see if he can find it."

"Fair enough!" growled the official. "The only quick thing in these parts is the Mexican jumping bean."

THE FISHERMAN'S "PROMISED SEA"

Ask any United States Navy officer who has "done a hitch" in Guaymas waters what the fishing there is like! "When they're biting good, you've got to hide behind a rock to bait your hook!" I once heard a sailor declare. Trolling for *toro,* red snapper, skipjacks, Spanish mackerel, yellowtail, cabrillo, and other sea fish is a favorite sport.

Once the fish-run came so fast and thick, crowding the sea so closely about our boat (we threw sardines overboard as bait), that we took in all except 15 feet of our lines, and actually caught the particular fish we wished out of the mixed school that leaped after us!

"Not you, but YOU!" my excited companion would shout, jerking his spoon from before an undesirable fish and tossing it in front of a choicer species. Then an eight-foot shark, darting suddenly up, grabbed the leaping skipjack I was playing, and took my fish, line and all, and much perfectly good American skin from a raw and smarting palm.

There are more fish and more kinds of fish in the Gulf of California, it is said, than in any other known body of water. A cannery built here could provide food for thousands. Just now the surplus tons of fish serve principally to support countless pelicans, cormorants, and other fishing birds that swarm on the rocky shores and islands of the Gulf.

WHERE WILD FOWL ARE A PEST

Comparatively few fish are captured by the Mexicans, who employ no modern means. The natives are without nets and trawls; they usually "still-fish" at a depth of 100 feet or more for the giant jewfish and tortuava. Each boatman carries a short, stout club, and when he finally gets his fish to the surface and alongside his boat he kills it by pounding it on the head; then he drags it aboard.

The rice planters in the Yaqui Valley will gladly buy you a supply of ammunition and lend you a shotgun if you will spend your next vacation down there. At irrigation time, particularly, the wild fowl become a pest, for this West Coast lies on one of their great migration routes. From a blind beside a rice field I once got 22 redheads in less than an hour, working a 16-gauge shotgun as the evening flight came in. There are geese, too, and brant and curlew and many varieties of shore birds.

Here also the California or "valley" quail is amazingly abundant, especially about the wheat and tomato fields. Around unusually good feeding grounds you will find these birds not in coveys, but in armies, frequently 500 or 1,000 of them feeding together in one field. They are numerous in the mesquite covered hills also, and a covey may often be located by watching for the hawks that circle above the thicket where the birds are hiding.

Among the rolling foothills, where they feed on acorns, myriads of "white wing" or Sonora pigeons make their home. At nightfall these birds flock down to the water holes or irrigation ditches by the thousands.

Here is an American happy hunting ground for those who love the rod and gun. Some day, when its charms are better known, Guaymas must become a popular winter resort of soft breezes, blue seas, and ideal January outdoor days.

WILD ANIMALS ABOUND

At Agua Fria Ranch, in Sonora, the Americans keep a professional lion-hunter, with a pack of trained dogs. Unless their prowling raids were continuously resisted, the wild beasts would soon overrun the ranch. Last year this hunter killed over 50 animals, including lions, tigers, and wildcats. Once he went into a deep cave after a wounded tiger, carrying his pistol in one hand, his torch in the other.

The ranchers complain that it is almost impossible to raise colts, especially in the hill countries, for lions have been known to leap a 12-foot corral to get at them.

The "burra" or black deer, and also the white tail, are very common. Ante-

Photograph by Harry A. Lawton

AN AMERICAN STEAM-SHOVEL DIGGING ACROSS THE CACTUS-GROWN PLAINS AT THE FOOT OF MOUNT ORIZABA, QUEEN OF THE MEXICAN ANDES AND SACRED MOUNTAIN OF THE ANCIENT AZTECS

The Aztecs were the original canal-builders of the New World, and half a century before the arrival of Columbus those accomplished people were at work on a "big ditch" to drain their capital, situated in a valley which once had been a lake and which occasionally reverted to that condition. This Aztec Venice not only had waterways for streets, but rafts for foundations, until Cortez built the latter-day Mexico City on dry land.

Photograph from Russell Hastings Millward

GATHERING PULQUE IN MEXICO

The favorite "fire-water" of the republic to our south is made from this aloe or maguey plant. In the higher altitudes, as in the State of Mexico, it attains an excellent growth, and vast fields are laid out in symmetrical rows. One tradition says the downfall of the ancient Toltecs was due to pulque. A beautiful maiden named Xochitl, daughter of a noble called Papantzin, is reputed to have discovered this insidious drink. Her people, the Toltecs, antedated the Aztecs and in some mysterious way were swept from the face of the earth.

Photograph from Russell Hastings Millward

THE MARKET AT GUANAJUATO: MEXICO

Note that the men wear trousers instead of the typical pajama-like costume of the Mexican. Formerly a recognized means of getting labor for public works in Mexican towns was to arrest road-builders, carpenters, masons, or whatever class of worker was needed, on some flimsy charge, and sentence them to "hard labor" for a requisite period on municipal projects. Some years ago Guanajuato introduced a variation in this practice and replenished its treasury by fining all natives coming into town in the usual garments. There also was a suspicion that some enterprising trousers-maker had influenced the city government. After their first surprise, the crafty country folk evaded the fine, and also avoided making a run on the trousers market by buying one pair per community and arranging schedules by which the busy trousers became ambulant jitneys, making three or four trips per day with different passengers.

lope are still seen in north Sonora. While hunting on the coast near Port Libertad our party jumped a herd of 35 antelope.

Nor must you go far into the Canadian north or run over to Tibet to hunt the wary bighorn. Here in northwest Sonora you can shoot him, if you can stand the heat and strain of a climb over blistering, inhospitable rocks, and can stalk and hit him after you locate him.

One American hunter I know counted 24 of these majestic animals, filing in solemn dignity from the mouth of a mountain cave, in Lower California, where they had lain to escape the midday heat. Afterward, exploring one of these caves, my friend found an odd mat, ancient and tattered, made of human hair. There were scraps of broken pottery, too, and a worn sandal of braided grass.

On some of these cave walls are scratched crude drawings of men and animals. These petroglyphs occur from Tucson all the way down to Guadalajara—dim, puzzling records of a vanished race.

A DIVERSITY OF RACES IN MEXICO

Few Americans realize the diversity of races in Mexico. From Sonora to Yucatan over 50 separate dialects are spoken. All the inhabitants of the West Coast, however, with the exception of some hill tribes of Indians, can understand Spanish.

Of these Indians the 8,000 Yaquis, with their crude Bacatete hill forts, their weird ceremonial masque dances and their warlike attitude, are easily most conspicuous. Many are enlisted with the federal army or employed as ranch hands and mine or railroad laborers.

General Obregon tells a story, typical of the Yaqui's subtle mind. Obregon once had occasion to warn his men against wasting their ammunition by shooting from the moving trains at objects along the road. Halted one day at a station, Obregon heard a shot and saw a Yaqui lowering his rifle, smoke floating about him. He went out personally and rebuked the Yaqui.

"But, my General, I did not shoot," pleaded the Indian. "It was some one who was here yesterday. The smoke you see is *old smoke.*"

The Yaquis with the federal troops are termed "Manzos," or "tame" Yaquis; those in the hills, wild and hostile, are the "Bronchos." The latter are a vagrant lot, robbing ranches for food and animals, carrying rawhide drums and water gourds, wearing sandals of green cowskin—living by their wits. Pressed by hunger, they subsist as well on burros as beef.

These burros, "the short and simple animals of the poor," thrive by the thousand on the West Coast. Many run wild, like "the wild asses of Mesopotamia."

The Maya Indians, some of whom still carry bows and arrows, inhabit the flat coastal plain south of the Yaqui region along the River Maya. Excellent laborers, peacefully inclined, many of the Mayas are trusted helpers on American ranches and plantations.

THE STRANGE SERIS OF TIBURON

Most of the well-advertised brands of wild men are fairly familiar to the show-going American public. The head-hunter, the Pygmy, the Bushman and his boomerang are all old circus acquaintances. But right here at home, within 700 miles of chaste and classic Los Angeles, there dwells a lost tribe of savages whose very name is known to but few of us; for this tribe has never been tamed, "uplifted," or even exhibited. Yet it is older, perhaps, than the Aztecs; it may even be the last living fragment of the American aborigines.

The Seris, these strange people are called, and they inhabit a lonely, evil rock called Tiburon (Shark) Island that lifts its hostile head from the hot, empty waters of the Gulf of Cortez. (Gulf of California it's printed on American maps.) And all down this coast the name of Tiburon is spoken with a shrug of the shoulders, for these Seris are thieves and killers. It is even whispered that long ago they were cannibals. However, they did not try to eat us or even hint at it while I was visiting them.

From where we anchored, off the north end of the island, it had seemed quite deserted; but no sooner had we waded from our whaleboat to the beach than two Indians appeared, carrying a flag of truce. Then came others, in swarms, venturing timidly from the mesquite and *palo verde* brush. They were tall men, mostly very slender, with straight black hair; their teeth were remarkably white and sound. Except for a few bows and arrows, all were unarmed. (Later I learned that they had hidden their few old rifles in a neighboring arroyo before showing themselves.)

A DISAPPOINTED CHIEF

One picturesque old man, clad in tattered rags, an antediluvian "Stetson," and rope sandals, advanced and asked in broken Spanish for the "Chief" of our party. We shook hands, and then, waiving further formalities, he demanded a drink. Our failure to produce alcohol had an immediate and depressing effect on old Juan Tomas, as he called himself. It also seemed to upset the rest of the tribe, who yapped and chattered excitedly for several minutes.

I was told afterward that previous exploring parties had invariably started negotiations with the Seris by offering whisky or mescal. Luckily I had brought some cigars, and when the tumult among the "wets" had subsided I produced these and gave them to Chief Juan Tomas. He made no move to pass them around; whereupon the other bucks again broke into noisy, jabbering protest. Then crafty old Juan lit a panetela, took a few puffs, and passed it to the Indian nearest

him. He, too, took a puff and passed the cigar on to the next; it finally disappeared in the crowd. But Juan held tight to the box.

"What kind of a man is that?" demanded the Chief, pointing to a negro sailor in our party.

"Es Americano, tambien," I explained.

"He's not," insisted the Indian. "I've seen Americans before. They come here to hunt. They are not like that man."

But he did not pursue the subject or show any further interest in the black man.

After some parley, the Chief agreed to lead us to the Seri village. It lay down the beach half a mile, toward the Sonora side. But when we got there it was not a pueblo at all, as other Indian pueblos usually are.

It was little more than a place in the sand where the Seris ate and slept—just rude, flimsy shelters of mesquite and tules, or *palo verde* brush piled in circles about holes in the sand. Here and there a few big turtle shells were worked in or laid on the brush. No typical Indian huts, no tepees—not even the primitive but substantial "ramadah" of the Pimas; in fact, the abiding place of the Seri is no more of a shelter than the pigs and calves of Iowa find on the lee side of straw-stacks.

The Seri women, carrying bundles on their heads and chattering excitedly, fled up a canyon as we approached their village. But after a few minutes they began venturing back, timidly, curiously.

A CONCERT ON THE SANDS

To add to the gaiety of the occasion, we brought from our ship a sailor who played the mandolin. It was incongruous, ridiculous—a mandolin tinkling off "Casey Jones" on this lonely shore. But our music failed to soothe these particular savages; on the contrary, it made the men dance and the women giggle. Then one sturdy, long-haired Seri dashed into the brush and emerged with—well, a fiddle, for lack of a better word; just a square of dried hide, a stick with notches in it, and a "bow"—merely a dried reed. He squatted down, stood the piece of hide on edge, laid one end of the notched stick on the ground and the other end on the upper edge of the hide, and fiddled away—and sang. It was not unmusical, nor was it music, as our ears know it.

"Sounds like filing a saw," grunted one of our sailors.

"I'll say he's sho got some jazz in it," ventured George, the negro.

One buck volunteered to dance. He got a dried deerskin and laid it, hair down, on the sand. Leaping onto this improvised platform, with swaying body and waving arms the Seri scraped and patted the dried hide with his bare, calloused feet, keeping time to the whining fiddle.

Then, one by one, a small group of women ventured out from the brush and formed a half circle about the dancer and began to sing. They were a sad-looking chorus, to say the least—ragged, unspeakably filthy, their faces and limbs hideously tattooed with some blue coloring matter, and their foreheads daubed with white bird-guano.

In a worn canvas envelope, suspended on a string about his neck, the Chief carries an old letter signed by the Prefect at Hermosillo, acknowledging Juan Tomas as *Jefe* of the Seris and holding him responsible for their good behavior.

POVERTY AND DEGRADATION UNEXAMPLED

Years ago these Indians inhabited a part of the Sonora coast and went trading to Hermosillo and Guaymas. But their thieving, lawless habits kept them so much in conflict with the Mexican authorities that eventually they were driven back to Tiburon Island.

For some months previous to our visit the Indians had not been to the mainland, by reason of a little affair wherein the tribe had murdered certain Mexican fishermen from Guaymas and burned their boat.

Their poverty and degradation are perhaps the most absolute among human beings anywhere. No housekeeping, no gardens, no animals, no fowls to care for, no tools—just to fish, to kill a deer or a burro, or spear a turtle! (While we were with them bucks brought in a deer; it was eaten raw.)

They had no utensils at all except clay *ollas*. One old squaw, ignoring us utterly, went on with her work making an

Photograph by Dane Coolidge

YAQUI BOY SOLDIERS AND THEIR SIGNAL DRUM OF DRIED DEERSKIN

olla. She would take a ball of red mud (brought from the high part of the island), roll it between her palms into a rope-like shape, then build onto the growing vessel. Finally, she would wet the clay strips in her mouth and shape the vessel with her hands and a clam-shell.

Mongrel dogs, lean and shivering, skulked about, nosing into an *olla* of chopped deer meat, from which women and children were also eating.

"How many dogs have you?" I asked of the Chief.

"I don't know; I can't count," he said.

He made the same answer when I asked him how many Seris there were. I judge, however, that there are not more than 200 Indians on the island.

THE MAGIC OF BRASS BUTTONS EVEN ON TIBURON

These Indians have practically nothing to trade; all they offered us were a few small pearls, deerskins, abalone shells, and one or two crude but water-tight baskets.

One of our party offered small coins to a little girl to induce her to pose for a picture. She ran away. A tender of the money to her mother made no impression; but a few bright brass buttons (yes! even on Tiburon!) cut from the uniform of a petty officer closed the transaction.

Such rags as the Seris wear they secure from time to time from stray fishermen or hunters who go up the Gulf and call out of curiosity at Tiburon.

Incredible as it sounds, these people were subsisting wholly on fish, bird eggs, and meat. The Chief begged us for flour and sugar, saying they had had none for months.

Certain Yaqui outlaws once fled to Tiburon. Governor Izabel, of Sonora, sent word to the Seris, offering a reward for the capture of the Yaquis.

"Bring them in with their hands tied," the messenger told the Seris in sign language.

Perhaps the sign was misunderstood; anyway, what the Seris brought in were

Photograph from Frederick Simpich

A VIOLIN VIRTUOSO OF TIBURON

The instrument of this fiddling Seri—a square of dried hide, a notched stick, played with a dried-reed bow—is primitive. But the music? "Ah, SOME jazz," pronounced the syncopation expert of the party, a negro sailor from the "States."

the hands of the Yaquis, cut off and tied on a pole!

Mexican observers say there is no marriage among the Seris; that they simply mate. There are no priests nor medicine men, though many Seri babies in years past were taken to Hermosillo for baptism in the churches there. To mourn, they cut off their hair and paint their faces black. They place their dead in mesquite brush and dry them.

When I got back to Guaymas, I learned from government records there that Juan Tomas' real name is "Coyote-Iguana," and that he is not a Seri at all. Years ago Seris captured a Spanish girl as she was traveling from Guaymas to Hermosillo, and took her to Tiburon. At that time the island chief was a stalwart Papago, who had also been kidnaped as a child. His vigor and shrewdness eventually enabled him to become ruler of the Seris, and he took the Spanish girl as his mate. The present chief, Juan Tomas, is the child of this couple.

Years ago a Mexican punitive expedition went to Tiburon, and while there offered to take the Spanish woman back to her people in Guaymas; but she refused to quit Tiburon. The Seris had tattooed her face; she was one of them.

PENINSULAR CALIFORNIA

The long, boot-shaped peninsula that swings down off the left-hand corner of the United States belongs to Mexico and is known on Mexican maps as "Baja," or Lower California. Early Spanish maps of America showed California as an island, due, no doubt, to limited explorations of this peninsula.

Scantly known as it is to the average American, this 800-mile-long strip of rocks, peaks, brush-grown mesas, and rare, fertile little valleys is a favorite

haunt for many Yankee naturalists,* fishermen, and big-game hunters; and here and there, in the more favored, well-watered, grassy spots of the higher ranges, hardy American cattlemen have built their adobe homes, where they enjoy the limitless freedom of vast unfenced areas. The Circle Bar Company at *Ojos Negros* Ranch runs cattle over a leased territory of two and a half million acres, and a British corporation holds title to something like fifteen million acres!

Away down at peaceful, picturesque La Paz, where Cortez repaired his schooners and where, centuries later, Walker, the Yankee filibuster, raised his flag, another Yankee today runs a busy little tannery, turning out 600 sides of good leather every day, for an American shoe factory. Here and there, in hill and valley, Americans are delving for metals or growing the staple *frijole*.

But the country as a whole, owing to its many desert, waterless areas, is but sparsely settled, and, as one writer says, "In all its turbulent, romantic history, since the halcyon days when Sir Francis Drake dropped his pirate anchor in Magdalena Bay, no wheeled vehicle has traversed its rough and tortuous length."

Rich as are its mines and fat as are its herds of cattle, its chief source of wealth lies in the cotton-growing regions around Mexicali.

A DIFFICULT BORDER PROBLEM

At the Colorado delta, more than at any other point on the whole border, the interests of the United States and of Mexico are closely joined. This is due to the singular topography of that region (part of it is below sea-level) and to the diversion of water from the Colorado River. In the opinion of many irrigation engineers and political students, this peculiarly delicate problem of irrigation water rights, as between planters on the American and Mexican sides of the line, respectively, can be solved satisfactorily only by some joint treaty between the two republics, involving either the fixing of a neutral zone or the sale of a small strip of territory.

* See also, in THE NATIONAL GEOGRAPHIC MAGAZINE for May, 1911, "A Land of Drought and Desert," by E. W. Nelson.

Years ago private American interests built an irrigation ditch, taking water from the Colorado River near Yuma to irrigate the Imperial Valley in California. To avoid the difficulty and cost of cutting through the shifting sand dunes west of Yuma, the ditch, following a line of easier resistance, was carried south over the border into Mexico, thence west for some 60 miles, and finally north again into California. Here the famous Imperial Valley, which now boasts a population of 65,000 and farms worth a hundred millions, was developed, the waste water running down into the Salton Sea, 260 feet below sea-level.

In return for the privilege of carrying this main canal over Mexican soil, the original promoters agreed to allow 50 per cent of its flow to be used in irrigating land on the Mexican side, where a great cotton-growing region, owned almost wholly by American colonists, has recently been developed. (In 1918 its crop was worth nearly ten millions.)

THE FATE OF A WONDERFULLY FERTILE VALLEY IS AT STAKE

Because of the international meanderings of this canal, it is easy to see that water rights are sometimes in conflict, and also that the farmers in California are uneasy, day and night, lest some harm come to the Mexican section of the ditch.

If this life-giving canal should be cut or destroyed by some force in Mexico, the vast Imperial Valley would dry up and quickly revert to desert, just as happened so long ago when Ghengiz Khan cut the canal above Bagdad and transformed the "sea of verdure" that Herodotus saw into the wind-blown mounds and sand-filled laterals that mark the modern plain of ruined Babylonia.

It is clear, then, why the governments of both republics are so concerned in safeguarding the international ditch.

And as yet, notwithstanding its present great prosperity, the real development of this amazingly rich Mexican region has barely begun. South of the so-called "mud volcanoes," east of the Laguna Salada and along the Hardy River, there stretches a vast, tule-grown area, flat as a billiard table and rich as the valley of the Nile, built up through age-long silt deposits from Arizona, Colorado, and

Photograph from Frederick Simpich

A GROUP OF MEXICAN CHILDREN, AFTER THE CEREMONY OF BAPTISM

In few places are children so numerous, so loved, and so well cared for, according to their parents' lights, as among the peons of Mexico.

© Hugo Brehme

MEXICAN RURALES OF THE OLD RÉGIME

Mexico, synonym of disorder in recent months, under President Diaz had one of the most efficient State police organizations in the world—the rural guards—who made the Republic entirely safe for the traveler. There is a tradition that Comonfort founded the organization on the theory of setting a bandit to catch a bandit, and formed from the outlaws themselves the nucleus of this body, which, under what has been called the "military Diazpotism," operated like the Canadian mounted police and the Pennsylvania State constabulary.

Utah, and embracing perhaps a quarter of a million acres. If pioneering and settlement proceeds at the same rate for the next ten years as in the past decade, this part of Mexico will become the richest and most productive in the whole republic.

NO PERMANENT JAPANESE SETTLEMENT IN LOWER CALIFORNIA

Japanese immigrants, numbering eight or nine hundred and mostly of the coolie class, have settled here in the past five years. Nearly all of these Japanese, as well as some 2,000 Chinese, work in the cotton fields about Mexicali. A few of both races have leased various small tracts of land and are growing cotton and other crops on their own account; *but not an acre of land* in all Lower California *is known to have been purchased by either a Japanese or a Chinaman.*

Contrary to common report, too, only a very few Japanese—not over 50 at any one time—are operating around Magdalena or Turtle Bay, on the Pacific coast of the peninsula. Most of these are employed by the Masahara Kondo Company, a Japanese concern that supplies fresh Mexican fish to California markets and ships dried abalone meat to Japan.

The Kondo Company has a concession from the Mexican Government for taking sea foods and whales, building drying sheds, wharves, etc., covering practically the whole west coast of Mexico; but so far it has operated on a very small scale, using only a few power boats built or bought at San Diego, Calif., and erecting drying trays at Turtle Bay.

There is no permanent Japanese settlement anywhere on either coast of the peninsula.

A MINING TOWN OWNED BY HOLLAND'S QUEEN

From hot, lonely, isolate Santa Rosalia, where Queen Wilhelmina of Holland and the Paris Rothschilds own the famous Boleo Mine, millions of dollars in copper matte are shipped each year. (Next to cotton, copper is Lower California's chief export.)

Rosalia is an odd, privately-owned, made-to-order city of some 12,000 troubled souls. Life there is depressing. As men are needed in the mines in larger or smaller numbers, they are imported or exported at the will of the French company on its own steamers.

The company owns everything, including the houses, stores, schools, playgrounds, markets, movie shows, the million-dollar breakwater, and all. Even the steel church was made to order in France, shipped around the Horn like a piece of knock-down Michigan furniture, and set up at Rosalia.

The country for miles about is treeless, empty, and hot. Every necessity of life, except fish, is imported. Were it not for the rich copper in the blistering, hostile hills, no sane human being would linger long on this inhospitable coast.

THE MAGNIFICENT HARBOR OF MAGDALENA BAY

Magdalena Bay, although the finest harbor between Panama and the Golden Gate, is a lonely and empty spot. Save for a few petty customs officials quartered in a small group of weather-beaten wooden houses on the margin of the bay, the region hereabout is practically uninhabited. Some forty years ago an ill-advised colonizing boom brought a few hundred misguided American settlers to the Magdalena Bay country; but the enterprise failed because of scarcity of fresh water, and the settlers escaped only through the aid of one of our navy vessels. The region has certain possibilities, but it is no place for a tenderfoot.

From San Xavier and ruined Tumacacori, in Arizona, all the way down to Guadalajara there marches a line of stately old churches, which marked the northern advance of the cross. Significantly, too, these padres always chose to build near ample water and rich soil. Traces of their old irrigation ditches, showing that they grew their own grain and fruit, are plainly discernible. There were cisterns, also, and loop-holed compounds for Indian defense in the days of the Church Militant.

Even as late as 1879 Apaches attacked the town of Imuris, in Sonora, and some of the people took refuge in the old church of San Ignacio, near there. Its

Photograph from Frederick Simpich

DIGGING FOR WATER IN LOWER CALIFORNIA

The long, boot-shaped peninsula has vast desert areas and ranges of barren hills which lie beneath a blistering sun, but there are also numerous fertile valleys which are the haunts of naturalists and big-game hunters. Here, also, hardy cattlemen prosper, their herds grazing over extensive unfenced pasture lands. The enormous mineral resources of the peninsula are as yet largely undeveloped, but perhaps its source of greatest potential wealth lies in its cotton-growing regions near the California border.

scarred walls still show plainly where Apache bullets bit angrily at the thick adobe.

In the old church at Caborca an American filibustering party led by one William Krebs, bound by a fantastic oath to "free" Sonora, was shot to death.

OUR COMMUNITY OF INTEREST

Far up in the wild Sinaloa hills are crude, tiny chapels, built by hermit priests. I met one old padre who had not been outside these hills for twenty years. He told strange tales of the hill folk and their primitive life. One Indian had lost a mule. He prayed that he might find it—and did, but it had broken its leg. To show his thanks, the Indian made a votive offering at the chapel, a tiny mule wrought from silver. But before bestowing his offering he broke a leg off the silver mule to balance the account.

Such is the story today of this awakening region whose commercial future is so peculiarly tied up with that of our own Pacific coast. The purchasing power of its natural products is enormous. Even now, in spite of the waste and hazard of revolution, we buy from it each year millions of dollars' worth of ore, bullion, hides, cattle, garvanzos, fiber, and hardwood; and nearly everything it uses from abroad it buys from us.

Inevitably, when normal conditions prevail, its development will proceed along the same lines, and perhaps even obtain the same final prominence, agriculturally at least, as our own State of California.

WILD DUCKS AS WINTER GUESTS IN A CITY PARK*

By Joseph Dixon

A Contribution from the Museum of Vertebrate Zoölogy of the University of California

THE wild ducks which winter at Lake Merritt, in the city of Oakland, Calif., afford a most striking example of the value which wild life may have to a community. The sane and efficient method here used to attract and safeguard the ducks has resulted not only in the preservation of the bird life involved, but also in making available for observation and enjoyment a peculiarly attractive display to a multitude of people.

Moreover, the methods employed have been thoroughly in accord with the growing democratic sentiment in America to the effect that our native wild life and game belong to the people as a whole and not to any one section.

Lake Merritt is a V-shaped body of salt water, covering somewhat less than a square mile, almost in the center of Oakland. It is the oldest State game reservation in California, having been established by the Legislature in 1869. The attractions offered wild ducks at Lake Merritt, in estimated order of importance, are: sanctuary, food, drink, suitable loafing grounds.

A large section at the east end of the lake is set off by a log boom, and boating is forbidden thereon during the winter months. Dogs not in leash are forbidden in the city park adjoining the lake, for there the ducks come out on the lawn and are fed daily at 10 o'clock. Of course, no shooting is ever allowed.

THE DAILY BOARD BILL OF A DUCK

The city, through its Board of Park Commissioners, provides food and water for the ducks. During the past winter (1918-19) feeding was not begun until the armistice was signed; thereafter four tons of whole barley were fed to the ducks in the Oakland city parks in 77 days at a total cost of $397.23, or at an average cost of $5.16 per day. The usual feeding period is about 100 days, and the average cost each year about $400.

If we figure on the presence of 2,500 ducks, the amount of barley consumed each day by each bird would be little over one-half ounce, and the cost per bird per day about one-fifth of a cent. Of course, the ducks depend in major part upon natural sources of food.

Several shallow cement drinking basins are maintained on the lake shore, and these are kept full of fresh water, being regulated by automatic cut-offs. The drinking basins are very popular with the river ducks, such as the Pintail and Baldpate, but are rarely visited by the Canvasback and other sea ducks.

TWO CLASSES OF WILD FOWL ARE ENTERTAINED

The wild fowl at Lake Merritt may be divided into two classes, those which come out and loaf on the lawn and those which remain on the lake. The river ducks, such as the Pintail, Baldpate, and Shoveler, as well as numerous coots and gulls, spend considerable time when undisturbed in sleeping and basking in the sunshine on the lawn.

On the other hand, the sea ducks, Canvasback, Scaup, Bufflehead, Goldeneye, and Ruddy (all characterized by having a vertical flap on the hind toe), prefer the open waters of the lake, along with the various diving birds, such as the Eared and Pied-billed grebes. The shore line is attractive to the Killdeer, that most ubiquitous of American wading birds.

The ducks begin to arrive about October of each year, and they scatter again at the close of the shooting season, Feb-

* For a detailed account of the various species of wild ducks, see Henry W. Henshaw's "American Game Birds," in "The Book of Birds," illustrated in natural colors, with 250 paintings by Louis Agassiz Fuertes. Published by the National Geographic Society.

Photograph by Joseph Dixon

WILD DUCKS AS WINTER GUESTS OF THE CITY OF OAKLAND

The hundreds of ducks shown are nearly all Canvasbacks, the most famous of our American wild ducks. There is no record of the nesting of this species of duck within the State of California; it breeds from Oregon, Nevada, and Dakota northward. The birds which winter in California do not belong to the people of California alone. It is becoming an axiom in the United States and Canada that migratory game birds do not belong to the people of any one section alone, but to all the sections the birds traverse during their annual pilgrimage.

ruary 15. After this date they are protected from shooting throughout the State and need no longer seek refuge in this sanctuary. Thus the ducks leave Lake Merritt several weeks before they depart for their distant nesting grounds in the north.

The time of arrival and departure varies with the different species. For instance, the Pintail arrives much earlier in the fall than the Canvasback, and also departs correspondingly early in the spring. In 1918 the Canvasback did not arrive in full force until early December, some time after the Pintail had arrived. On February 16, 1919, only one Pintail was seen on the lake where thousands were present a month earlier. At this date (February 16), when only one Pintail was noted, hundreds of Canvasbacks still thronged the waters near the Embarcadero, and many individuals of this species were still present during the first week in March.

Among the various kinds of waterfowl which regularly visit Lake Merritt each winter, the following four species of wild ducks occur in greatest numbers and are of particular interest:

The Pintail, or Sprig, one of the largest and most graceful of all our wild ducks, is the species found on the lawns in greatest aggregate numbers. Both the common name, Pintail, and the scientific name, *acuta,* have been given this bird on account of the long, rapier-like tail feathers, which form the most striking feature in the male of the species.

Photograph by Joseph Dixon

PINTAILS ASLEEP, OBLIVIOUS TO THEIR CITY SURROUNDINGS

Most city folk would be much surprised to wake up in the morning and find their front lawn covered with wild ducks. Scenes such as this are frequent in the fashionable residence district about Lake Merritt. The birds here are very much at home and seem to know that they are in a veritable "city of refuge," as far as ducks are concerned. Note that Pintails sleep lying down instead of standing on one leg, as is the case with Shovelers.

In addition to this character, the male may be recognized in the field by having a pure white belly and breast, from which a conspicuous white stripe extends up along each side of the neck, almost meeting its fellow at the back of the head, but separating the dark-brown head and chin from the black hind neck.

The female is smaller than the male and has a dingy instead of a pure white breast. The top of the head and the sides of the neck are brown streaked with black. The feathers of the sides and back are brown with whitish margins.

NORTH AMERICA'S MOST FAMOUS WILD DUCK

When shot at on the hunting grounds, the Pintails soon become exceedingly shy and wary. Showing far more intelligence than the Canvasback, they often refuse to come within gun range of the decoys. Yet these same birds are the ones which respond most readily to the man-made opportunity to secure rest, food, and freedom from enemies at Lake Merritt.

The Canvasback, North America's most famous wild duck, is the species occurring second in abundance at Lake Merritt. During the winter of 1918-19 there were nearly 50 per cent more "Cans" present on the lake than there were the previous winter, so that this season the number of Canvasbacks and Pintails was nearly equal. The whitish, canvas-colored back of the male is the character which gives this duck its common name.

Canvasbacks obtain their food by diving, and make little effort to secure food which floats on the surface of the water. When fed grain, they wait until it sinks to the bottom and then dive for it. When about to pick up barley in four or five feet of water, the neck is arched; then the bird springs clear out of the water and goes under with a little splash, spreading its stubby black tail and paddling vigorously with both feet meanwhile. Eight or ten birds out of a flock

Photograph by Joseph Dixon

CANVASBACKS, PINTAILS, AND BALDPATES ON LAKE MERRITT, OAKLAND, DURING A FOGGY MORNING

Some idea of the number of wild ducks which winter on Lake Merritt may be had from the above illustration, which represents only a portion, about 1,500, of the total number. On December 28, 1918, there were 5,000 wild ducks on the lake and adjacent lawns. At this date Pintails and Canvasbacks constituted two-thirds of the total number. The number of Canvasbacks this year was at least 50 per cent greater than it was in the preceding year. The above figures are based on actual counts by various persons and are not mere guesses.

Note the long, slightly up-curved tail of the Pintail (lower left margin of picture) and the sharp, stubby, tipped-up tail of the Baldpate (lower center). The Canvasback (lower right) shows no tail at all to speak of.

Photograph by Joseph Dixon

A FEW OF THE DUCKS WHICH WINTER ON LAKE MERRITT

Just as this picture was snapped a man, passing by, paused and remarked with a tone of finality: "There are a thousand pounds of meat there." The *meat* was evidently all he saw. A gentleman overhearing the remark said: "It would be just plain murder to shoot into a flock like that." Later, a boy, passing by, said to his chum: "Gee! wouldn't it be great to get a shot into a bunch like that?" But his chum showed that he was a true sportsman when he replied: "No! it would be too easy." The ducks in the foreground are nearly all Pintails. The dark-colored, bobtailed birds in the foreground are Coots, commonly known as Mud-hens.

Photograph by Joseph Dixon

DUCKS, COOTS, AND GULLS AT A DRINKING BASIN

Providing drinking basins for wild ducks may smack of "carrying coals to Newcastle"; yet the fresh water in these shallow cement basins is one of the most potent attractions offered the fresh water or river ducks at Lake Merritt, which is salt. The Canvasbacks and other "sea ducks" are rarely seen to visit the drinking basins, seemingly content with the salty, tidal water of the lake.

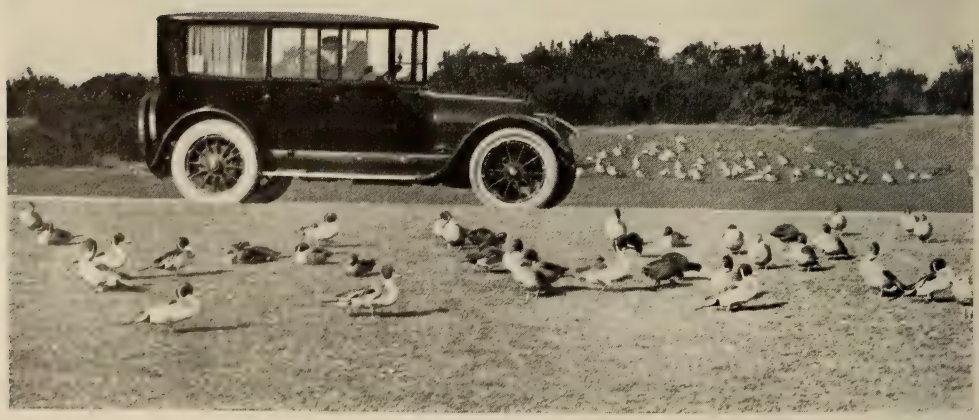
Photographs by Bowman Drug Co., Oakland

TWO PANORAMIC VIEWS OF WILD DUCKS AT LAKE MERRITT

These two photographs, taken several years ago, are of historical interest, since they afford a reliable basis for comparing the numbers of ducks present then and now. They bear out the assertion that Lake Merritt is becoming increasingly popular with the ducks as the years go by. The upper photograph is the earlier of the two and gives a good idea of the lay of the land. The lower photograph shows the method of feeding the ducks by scattering whole barley broadcast. Two photographers and several auto loads of interested spectators are taking advantage of the opportunity to study wild ducks at close range.

FIRST CALL FOR DINNER

In midwinter the ducks are fed daily at 10 o'clock. The moment the waiting birds catch sight of their approaching meal there is a wild scramble in the direction of the caretaker. The latter encourages the newly arrived and timid ducks to come ashore by cleverly imitating the mellow whistle of the Pintail. Many of the ducks fly in from the lake and alight on the lawn where the barley is being scattered broadcast. The ever-ready Mud-hens can be seen, at the lower margin of the photograph, making frantic efforts to "get there first."



Photographs by Joseph Dixon

WILD DUCKS SOON GROW ACCUSTOMED TO CITY LIFE

At Lake Merritt the ducks have little fear of the many autos which pass hourly. When an auto approaches the ducks waddle off the pavement, and when a few feet distant often turn around, settle down, and go to sleep, as illustrated by the three Pintails in the middle foreground. Many autoists take advantage of the unusual opportunity thus afforded to watch the ducks at close range. This tameness of the ducks has increased people's appreciation of the value of living birds and of native wild life in general.

frequently dive in unison, with almost military precision.

When feeding under conditions just described, the ducks remain under the water from 10 to 30 seconds. They are apparently able to see well under water. Whole barley and rice are the two grains most relished. The Canvasbacks prefer the open waters of the lake, rarely going out on the lawns, although they regularly spend considerable time on the mud flats at the margin of the lake, sunning themselves, preening their feathers, and sleeping or resting.

THE DISTINGUISHING MARKS OF THE CANVASBACK

In the field, the low sloping forehead is, in both sexes, the best distinguishing mark of this species. If a straight line were drawn from the top of the head to the tip of the bill, it would almost touch the top of the bill and the forehead for the entire distance. The male bird is characterized by having a white back, a reddish-brown neck entirely surrounded at the base by a broad black collar, and a black tail and rump patch, which latter, when the bird is resting on the water, is not completely covered by the white feathers of the back. The bright carmine eye of the male is readily visible at a distance of 20 feet in good light.

The female Canvasback lacks the contrasting black and white coloring of the male and has a brownish, moth-eaten appearance. The most conspicuous feature of the female, aside from the low sloping forehead, is a whitish, comet-shaped streak behind the eye.

THE BALDPATES HATE TO HAVE THEIR PICTURES TAKEN

The Baldpate or Widgeon is the species third in abundance at Lake Merritt. This duck receives its name from the broad streak of white which, in the male, extends from the forehead over the top of the head. A wide streak of metallic green is also to be seen behind the eye. The female lacks these two characters, but both sexes may be recognized, even in flight, by the small, short bill and by the white belly, which contrasts with the pinkish brown sides and breast.

When resting on the water, Baldpates may be recognized by their sharp but stubby tails, which stick upward at a much sharper angle than does the tail of the Pintail. While mingling freely among the Pintails even in flight, the Baldpates have been the most difficult of all the ducks to photograph at close range. It is hard to get them off by themselves, and when separated they usually manage to keep one or more Pintails between themselves and the photographer.

Aside from its peculiar spoon-shaped bill, which is the reason for its common names, the Shoveler, or Spoon-bill, is one of the most beautiful ducks in the United States. The bright-green head and neck, white breast, rich cinnamon underparts, and orange red feet and legs make up the brilliant color scheme of the male. In this bird one of the best field characters is to be found in the large white spot on each side, at the base of the tail. The female has the same peculiar bill as the male, but lacks his bright coloring.

THE BENEFITS DERIVED FROM THE SANCTUARY

As will be seen from the photographs, the female Shoveler has a distinctly mottled appearance, because of the brown feathers on the back, breast, and sides being widely margined with ashy. In flight, both sexes may be recognized by the spoon-shaped bill, chunky head, short neck, and diamond-shaped tail.

The Shovelers occupy a certain central portion of the lawn, to which they are very partial. Here they congregate in long, strung-out flocks, all the birds headed in one general direction, and doze in the sunshine. Each bird stands on one leg with its bill tucked away among the feathers of its back.

To the city man or woman, often engaged in a sedentary occupation, the recreational value of wild ducks is of far greater importance than any monetary value. To these people, the hours of relaxation spent at suitable intervals during the winter, in the sunshine and open air of the park, observing and enjoying the blending colors and graceful movements of the ducks, may often be of very considerable importance in maintaining personal health and mental vigor.

Photograph by Joseph Dixon

THREE BRACE OF CANVASBACKS

In both sexes the low sloping forehead is the best distinguishing mark of the Canvasback Duck. In the first two birds on the right, for example, note that if a straight line were drawn from the top of the head to the tip of the bill, this line would almost touch the top of the bill and forehead for the entire distance. The whitish, canvas-colored back of the male is the character which has given the species its name. The "Cans" prefer the open water of the lake. They frequently come ashore to dry and preen their feathers, but they rarely go far from the edge of the water. The reddish brown neck and the head of the male bird are rendered photographically almost black. The bright carmine iris of the eye, which is plainly visible at 20 feet, also comes out dark.

Photograph by Joseph Dixon

DUCKS FLEEING TO THE LAKE WHEN FRIGHTENED BY A DOG

The sportsman, to whom "the outing in the open is the thing, not the amount of blood-stained feathers in the bag," will find abundant opportunity at Lake Merritt to match his skill against the speed of wild ducks if he will substitute a speedy shutter and lens for his shotgun, and fast plates for shells. Some one may say that this is too easy to be interesting; but just let him try to get that flock of Pintails "slanting in" on set wings, or to "stop" a male Pintail as he "climbs" skyward. The chances are that such a photographer-hunter will, with undiminished pleasure, soon be using the camera more, and the shotgun less.

Even the hunter should realize that the present tendency toward curtailment of his shooting activities will result in ultimate benefit even to himself. We cannot expect long to maintain any adequate supply of wild ducks if we continue to levy on the breeding stock by shooting more birds each year than there are birds hatched and reared in that year. No business man expects to continue drawing checks against his bank account unless he continues to make deposits in favor of that account.

At Lake Merritt abundant opportunity is still afforded the true sportsman who wishes to match his skill against the speed of flying birds. If "the outing in the open is the thing, and not the amount of blood-stained feathers in the bag," then by substituting a speedy shutter and lens for his gun, and fast plates for shells, he may "pull trigger" to his heart's content without destroying creatures which are more useful alive than dead, or depriving his fellow-citizen of something which is common property.

CURIOUS AND CHARACTERISTIC CUSTOMS OF CENTRAL AFRICAN TRIBES*

By E. Torday

Member of the Council of the Royal Anthropological Institute, Member of the Council of the Folk Lore Society, etc.

With Photographs by the Author

DURING my seven years of travel in the African wilds I have encountered few peoples possessing stranger customs and presenting more curious contrasts than the Bambala tribe, who reside in numerous village communities on the banks of the Kwilu River, a southern tributary of the Congo.

Each village is under its own chief, who holds the position by virtue of his wealth and is succeeded at his death by the next richest man of the tribe. His principal function is to act as money-lender to his subjects. No tribute is paid to the chief, but he has a right to the ribs of every human being killed for food and to the hind legs of each animal killed during the great hunts. If a chief is young enough, he acts as leader in war; otherwise one of his sons takes his place.

Intermediate between the chief and the ordinary freemen is an hereditary class called *muri*, who may not eat human flesh nor yet the meat of fowls. They are distinguished by an iron bracelet and a special head-covering of cloth, which may not be removed by any one under penalty of death, even if the offender did not intend to touch it.

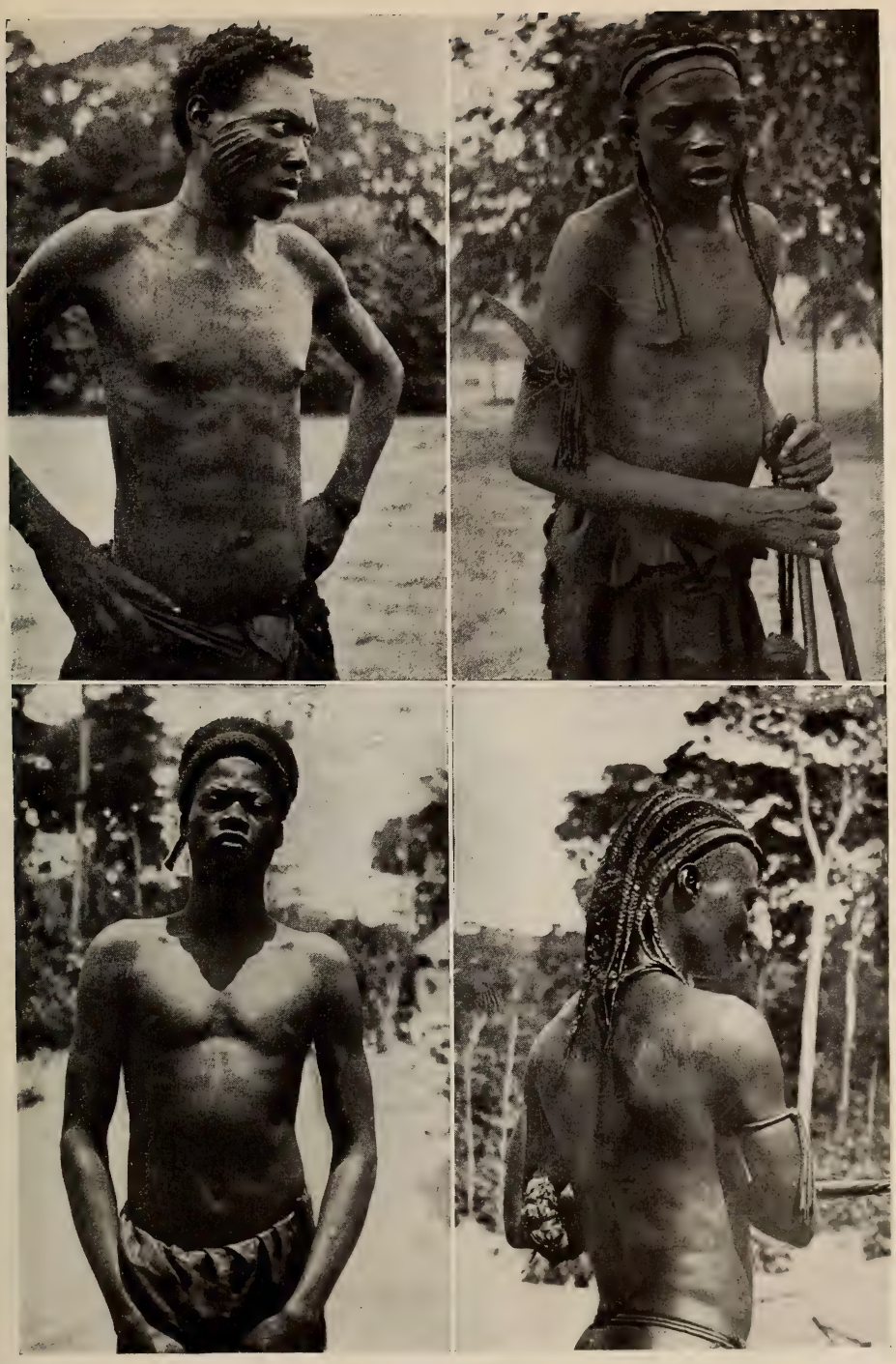
The bracelet of a *muri* passes at death to the nephew (sister's son), who succeeds to the dignity, and the heir must steal the skull of his uncle. The corpse is buried for some two months, then the skull is exhumed, painted red, and placed in the house its owner used to occupy. The nephew must gain possession of it at night without being observed, and, after hiding it for a few days in the bush, take it home to his hut.

If a *muri* is killed in war, his bracelet is sent home, but the skull has to be stolen as before from the hostile village. The chief privilege of a member of this class is the right to a portion of each animal killed in hunting.

POISON TO PROVE THE JUSTICE OF ONE'S CAUSE

In disputes, where two people of the same village are concerned, a poison ordeal is employed as judge. Whether a man is accused of witchcraft, parricide, or of some minor offense, he declares

*This article, revised and edited, is based upon the author's "Camp and Tramp in African Wilds," a record of adventure, published by the J. B. Lippincott Company, Philadelphia.



FOUR TYPES OF NATIVES IN CENTRAL AFRICA

At the top and to the left is a Moyanzi youth with highly raised scars, tribal marks, on the cheeks. To his right is one of the Bakwese, essentially a tribe of warriors. They are never found without having at least a knife sticking in the bands they wear as ornaments round their arms, and they are always ready to use any weapon at hand. Below, at the left, is a northern Bambala native whose hair-dress differs considerably from that of his southern Bambala neighbor to the right. When freshly arranged the latter looks like a "toque." The southern Bambala let their hair grow to a considerable length, removing only three or five longitudinal lines with the razor. The remaining hair is plaited into ridges, and to give it an appearance of greater length palm fibers are frequently plaited into the ends. Small nails with gilt tops are stuck into the ridges.

CICATRICES AS TRIBAL MARKS IN CENTRAL AFRICA

This style of embossed flesh known as cicatrization usually shows to what tribe a man belongs. Often it is a more reliable guide than language; for while language may undergo changes caused by a new environment, Congo peoples stick faithfully to their tribal marks. The concentric circles on the back are characteristic of the Mongo tribes.

himself willing to take poison to prove his innocence.

The poison, which is derived from the bark of a native tree (*Erythrophlœum guineense*), is usually ground fine and mixed to a thick paste, from which are made five small loaves, and these are administered one after the other to the defendant. During the next fifteen minutes, if it is a case of witchcraft, the bystanders call on Moloki (the evil principle) to come out.

The poison usually acts very quickly; it may kill the accused or cause purging or vomiting. The last-named effect alone is regarded as a proof of innocence. In the second case the prisoner is compelled to dig a hole. He is then given a fowl to eat and enough palm-wine to make him quite intoxicated. After this he is laid in the hole, or possibly goes and lays himself down, and is then buried alive in order to prevent Moloki escaping with his last breath. A large fire is kept alight on the grave for two days, and then the body is exhumed and eaten.

An innocent man is carried round the village, decorated with beads, and his accuser pays a pig as compensation for the false charge.

THE BAMBALA IDEA OF IMMORTALITY

After a death from natural causes, women lament for several days, and guns are fired to keep off Moloki. The body is at first deserted by every one, but later it is laid out, painted with white clay, exposed for several days, and finally wrapped in cloths and buried with the feet to the east. The funeral is attended by near relations and idlers generally. A goat is killed and half of it buried, the rest being eaten. Pots are broken on the grave and a semicircular hut is set up over it.

During the mourning which follows, the village is deserted, and the inhabitants sleep for a time in the open. The hair is allowed to grow, and cut only when parasites accumulate to an intolerable extent.

After death the soul is supposed to wander about, and if the grave is neglected it disturbs and may even cause the death of its relatives. Otherwise it takes the form of an animal; if a chief, of a large beast, but it may also wander about in the air.

A RACE OF TALL, WELL-BUILT PEOPLE

In color the Bambala are very dark brown, the hair is absolutely black, and the eye a greenish black with a yellow cornea. The face is not of the ordinary negro type, but much more refined; thick lips, for example, are quite exceptional, and only a small proportion have flat noses.

The northern Bambala are strongly built and tall, but, as we proceed southward, with increasing scarcity of food comes a slighter type, which also seems to be lighter in color. The hands and feet are small, and, like those of all colored people, yellow on the palms and soles. They pick up objects with their feet with great dexterity.

In the north the women are not very good-looking, but farther to the south, where the males approximate a feminine type, there are real beauties among the softer sex.

Both sexes wear practically the same dress—a strip of palm-cloth of its natural color, about a yard in length and half a yard in width, worn round the waist in front and falling to the middle of the hips behind. Sometimes a girdle of similar cloth is added or a roll of grass colored with red clay, and the women, like many other Bantu tribes, wear a string of beads under their cloth. Men wear skin aprons occasionally on which the hair is left. The garments are sewn with native-made iron needles and palm fiber thread.

BAMBALA FASHIONS IN HAIR-DRESSING

The head is partially shaved, and the bare portion is painted with soot and palm-oil. Hair is allowed to grow on the top of the head in the form of a cap, and in old age a piece of palm-cloth, dyed red, may be added to cover a bald spot or white hairs. As a special decoration, a man who has slain a great enemy wraps the bones of the victim's fingers in a cloth and wears them on his head; this is supposed to have magical virtue.

There is another fashion of hair-dressing, which consists in leaving the hair at the back of the head only and making it up into tresses with soot and palm-oil.

A BELLE OF THE BAMBALA TRIBE ROUGES NOT MERELY HER CHEEKS BUT HER WHOLE PERSON

All southern Bambala women are painted completely red; their clothes, hair, ornamental strings and beads, all are dyed with red-colored ferruginous clay. They are so fond of this color that they paint with it any gift they offer to a stranger. The coiffure is elaborate, and the band across the forehead is made of plant fiber. Note the pebble-dash effect of the cicatrices on the abdomen and on the shoulder.

PEOPLES OF CENTRAL ASIA WEAVE THEIR DESIGNS IN RUGS; THOSE OF CENTRAL AFRICA WORK THEIRS IN HUMAN FLESH

Cicatrization is the favorite form of adornment among many tribes; but few women can boast of such a work of art as this Manyema girl has on her back. It is difficult to imagine the pain she must have endured while deep cuts were being made in her flesh, followed by the still more painful process of retarding the healing of the wounds, so as to obtain the highly raised scars.

FINE FEATHERS MAKE A FINE BEAU IN SOME REGIONS OF THE CONGO

A Mobunda native does not think himself presentable without an elaborate millinery creation, which may consist of bunches of feathers, a wreath of leaves, or a small wooden carving—any object that he thinks may contribute to his beauty. As for protection from the rays of the sun, he relies on the thick mass of woolly hair with which nature has provided him.

A WOMAN FROM THE TRIBE OF ZAPPO ZAP, A CHIEFTAIN CREDITED WITH 300 WIVES

As the traveler goes eastward he observes that the features of the natives become more refined. In some types very few of the characteristics usually attributed to negroes are to be found. The black color, so common on the west coast, is replaced by a soft chocolate-brown, which in certain individuals merges into dark yellow. Kasai people speak of the inhabitants of the lower Congo as "black negroes."

CONGO XYLOPHONISTS AND THEIR HOME-MADE INSTRUMENT

As found among the Bapinji, this is a highly developed instrument of music; it is well tuned in a scale closely resembling ours. The blades are made of hardwood, and each blade has a separate sounding-box, consisting of a dry gourd attached underneath. Some of the players are real artists and have a repertoire of many tunes, but from the expression on the face of the musician at the right it may be inferred that some one has struck a false note.

A BAPINJI BELLRINGER: HIS TOCSIN IS A WOODEN GONG

The gong is a highly developed means of signaling at considerable distances and certain tribes are past masters in transmitting even the most complicated messages.

A DRUMMER BOY AND HIS AUDIENCE

The drum is the principal instrument played at Congo dances. While the sounds produced by it cannot be called harmonious, they are loud and rhythmic. The drummer is a man of some importance and the presents he receives for his performances constitute quite a nice income.

The beard, too, comes in for adornment; it is often fairly long, but it is bound up under the chin, and pieces of clay are hidden in the knot to make its bulk larger. The eyebrows are usually shaved, as is the moustache.

Numerous ornaments are in use, but, though the ears are pierced, earrings do not seem to be worn. Combs, made of wooden teeth bound together, serve the double purpose of adorning the wearer and providing a means of conveniently scratching the head. Brass bracelets are imported from Europe in great numbers, and men sometimes wear iron bracelets made in the country. Imported rings are worn not only upon the fingers, but upon the great toe, and beads are also worn by both sexes.

Certain forms of ornament are reserved for men; these include teeth, human, leopard, or ape, the leopard teeth being usually imitation. Small antelope horns are worn round the neck, and these, too, are imitated in tin.

THEIR BODIES ORNAMENTED WITH SCARS

Tattooing is rare, for the color of the skin will not allow the pattern to appear to advantage; all that is done is to make a quadrilateral on the arm with three or four needles. Ornamental scars are more elaborate. They rise above the surface of the skin, owing to artificial retardation of the healing process. Men have a line running over the forehead from the outside corner of the eyes and a line across the chest, more or less straight, about one inch broad and often more than an inch above the adjacent skin; a lozenge pattern decorates the navel. The lozenge pattern is also usual with women, who

HIS CROWNING GLORY

The Babunda women shave their heads, but the men are very proud of their abundant locks, which, when anointed with soot and oil, resemble nothing so much as floor mops.

RESTING AFTER A LONG TRAMP—LIKE A FLAMINGO, ON ONE LEG

This Bakwese is standing in a favorite position of rest. When on a long march, it is considered an unwise thing to sit down, as the limbs become stiff and further progress is sometimes impossible.

THE PELELE, OR LIP PLUG, IS ONE OF THE WEIRDEST ORNAMENTS WORN BY THE NATIVES OF CENTRAL AFRICA

Among the people near the mouth of the Lomami River both sexes adorn themselves in this way. The fashion is disappearing, but those who have abandoned the plug itself continue to perforate the upper lip.

IT IS THE FASHION AMONG WOMEN OF THE BAYANZI TRIBE TO SHAVE THE TOP OF THE HEAD

They allow their hair to grow long behind, however, and their shampoo is a mixture of soot and palm oil, while cords are used to make their thus laundered locks behave.

"WELCOME, WHITE STRANGER!"

In the Congo the traveler, if he has not made himself disagreeable, can always rely on the good-will of the women. On the other hand, they resent an insult to the village or the tribe more readily than the men and stir the latter up to seek revenge.

decorate both arms and body in this way. In addition the body is painted red. Clay is used for this purpose by the Bambala beaux and belles, who admit that the practice is intended to increase their beauty. In the case of mourners, the object being different, soot is used by the men and brown clay by the women.

HUMAN FLESH A RARE DELICACY

The ordinary food consists of manioc flour made into a paste with water and boiled. The leaves of the plant are also eaten prepared with palm-oil and pepper. Animal food is not limited to goats, pigs, and other domestic small fry, for, frogs excepted, everything helps to make a stew, from ants and grasshoppers up to man.

Human flesh is, of course, a special delicacy, and its use is forbidden to women, though they do not disdain to indulge secretly. Other titbits are a thick white worm found in palm-trees, locusts, rats, and blood boiled with cassava flour. Human flesh is not the only food forbidden to women; they may not eat goat's flesh, hawks, vultures, small birds, snakes, animals hunted with weapons, crows, or parrots. To the rule against flesh killed with weapons there are two exceptions—the antelope and a small rat.

Rich people, who can indulge in luxuries, eat kola nuts in great numbers. A kind of native pepper is known, and oil is obtained from the palm-nut. But the chief condiment is salt, which is made of the ashes of water plants. There is, however, a strong preference for the imported salt, which is in crystalline form as a rule, the crystals being perforated and strung on a string, which is dipped into the food-pot. On a journey salt is eaten as a stimulant and salt water is also drunk.

Earth-eating is by no means uncommon, and it is said to be good for stomach ache; the earth in use has an astringent taste.

As regards animal food, if there is abundance it is simply boiled and eaten with the fingers. It must be remembered

that meat for the Bambala is simply a bonbon, much as chocolates are for us. Once I killed an elephant, which the natives were at liberty to consume—blood, skin, and bones, if they pleased. After they had eaten as much as they wanted they came and asked for their dinner.

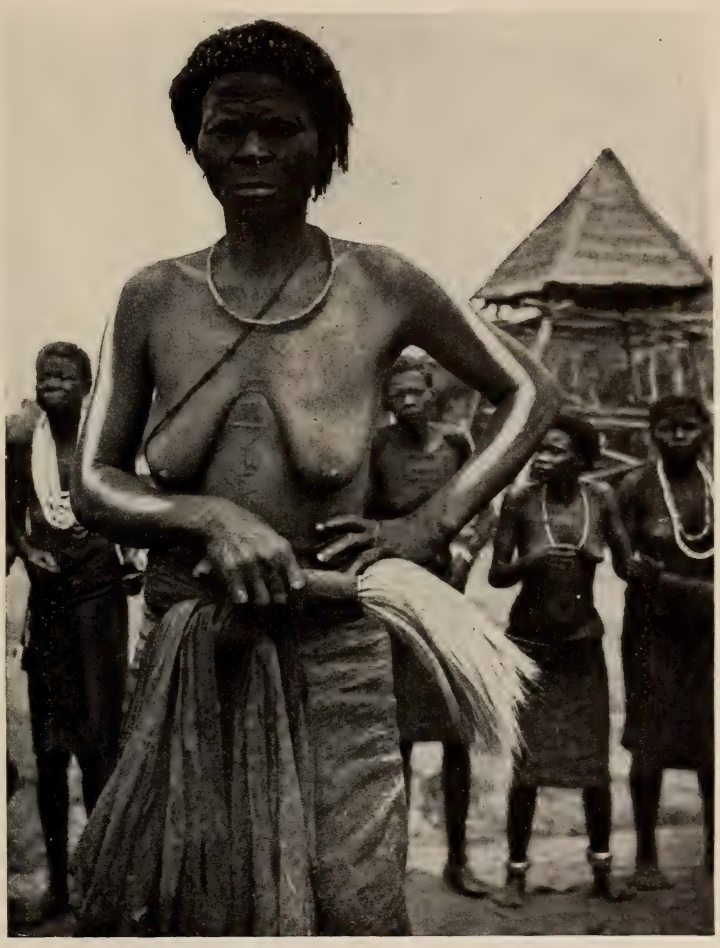
Goats and pigs are slaughtered by being clubbed so as not to lose the blood; but the former are also skinned alive and die under the knife, which is of iron, home-made, and as sharp as a razor.

CANNIBALISM A COMMON PRACTICE

Cannibalism is an every-day occurrence, and, according to the natives themselves, who display no reticence except in the presence of state officials, it is based on a sincere liking for human flesh. Enemies killed in war and people buried alive after the poison test, or dying as a result of it (see text, page 342), are eaten; so, too, are slaves, and farther north and near the river these are killed on rare occasions to provide a cannibal feast. In the latter case the body may be buried for a couple of days and a fire kept burning over the grave. The flesh is consumed in the ordinary way with manioc flour.

I have never been able to trace any magical or religious basis for any of these customs. Vessels in which human flesh has been cooked are broken and thrown away, and this rather suggests some magical idea, but the men say that the custom is only adopted to prevent women or other prohibited persons from using the same pot afterward. On the other hand, this prohibition against using the pot subsequently suggests that there was in the past some idea of possible magical effects, though women are at the present day debarred from human flesh, as they are from goat's flesh, only in order that there may be a larger supply for the men.

There is only one way of abolishing cannibalism in these countries, and that is not by making laws against it. On one occasion I gave one of my boys a tin of



SHE WEARS HER BADGE OF SORROW ON HER ARMS

Mourning in the Congo may be expressed in different ways according to the tribe to which the bereaved belongs, and also according to the degree of relationship to the deceased. Sometimes the whole body is besmeared with clay of a certain color, sometimes only the chest or the arms. It is usual for mourners to let their hair grow until the period of mourning is over.

THE BAOBAB, A NATIVE OF TROPICAL AFRICA, IS ONE OF THE LARGEST TREES KNOWN

It is not infrequent to find near the coast a tree of this species with a diameter of 30 feet. Both cloth and ropes are made from the fibrous bark, and the trunks of living trees are sometimes excavated to make houses. The fruit has a cool, pleasant taste.

A MAGIC CIRCLE OF VILLAGE CHARMS

A heap of stones surrounded by cane-work, a few skulls of animals, the shell of a landrail dyed red, and similar objects are supposed to have great magical powers.

AËRIAL GRANARIES SAFEGUARD THE FOOD OF THE BAPINJI TRIBE

To avoid the depredations of rats and of other vermin, the Bapinji have devised a suspended granary in which to store such products as ground-nuts.

A HOUSE OF REEDS

In some parts of the Congo, when a house is to be built, a frame-work is first erected, and this is then covered with grass. It is a curious fact that village fires are a rare occurrence, although the people keep a fire going all night, and no special precautions are taken to avoid conflagrations.

THE HOUSES OF THE NATIVES ON THE LEFT BANK OF THE KWILU PRESENT A PICTURESQUE APPEARANCE

The doors are covered with porches made of thatch, which seem to be resting on two wooden pillars; these are, however, purely ornamental. The fowl-houses are smaller in size and round, otherwise they are imitations of the human habitation.

FISH TRAPS FURNISH MUCH OF THE FOOD FOR CENTRAL AFRICAN TRIBES

The catch of low-water periods is often cured so as to last during the rainy season, when the high water prevents the capture of a fresh supply.

SHE'S GOING FISHING

Fish are mostly caught in traps and in baskets. Some of the baskets are very large and are fastened between the sand-banks; the fish do the rest. Fishing in the river is the occupation of the men; in swamps it is done by women.

WEAVER-BIRD NESTS HANGING LIKE FRUIT FROM THE LEAVES OF A TOWERING PALM

In many villages along the Kwilu River the palm trees are covered with nests of a species of black weaver-bird. At regular intervals the natives take the fledglings and cook them whole in oil. They are considered a great delicacy. Note the youth at the left of the group in the foreground who seems to be intent upon keeping his costume on straight. It consists of a straw hat, evidently the gift of some European trader.

sardines, telling him to give his companions equal shares. With tears in his eyes he said that it was impossible; he could not eat sardines, for the cook had given him a *kissi* (medicine) to prevent him, and he would die if he ate them. I put him at his ease by giving him a stronger *kissi* from Europe, and to see him dispose of those sardines was a real joy.

To wean the Bambala and other tribes from cannibalism it is necessary to give them a *kissi*, which will prevent them from eating human flesh under penalty of death if they disobey. I have not the slightest doubt that if some one in whom they had confidence adopted this means they would give up eating human flesh once and for all.

BAMBALA TRADERS ARE EXPERIENCED PROFITEERS

Among the Bambala every one is a dealer in live stock, which is exchanged for rubber, and this in turn is traded to Europeans for salt; the salt is exchanged for slaves, the slaves sold for *djimbu* (small shells, which serve as currency), and more goats or other live stock purchased in the country where they abound. In this export trade men alone are engaged; in the home trade—in food and pottery—women have in like manner a monopoly. The natural preference of chiefs and important men is for trade, but they do not regard labor as smiths or basket-makers degrading.

The purchasing power of their unit of value may be judged by the fact that the price of a female slave ranges from 15,000 to 20,000 *djimbu*. A hundred *djimbu* will purchase one fowl or one big iron block or 12 ounces of salt; an iron hoe blade is worth 300 *djimbu*.

The profits made in trade are enormous. Eight thousand *djimbu* will purchase ten goats, for which 250 balls of rubber are obtained; these are worth ten stone of salt, for which two slaves can be purchased, and the two male slaves will fetch 20,000 *djimbu*. These operations take about a month, and the gross profit is 150 per cent. The trader, as a rule, goes in person and takes his own food. He spends nothing on clothes, and the question of shoe leather does not trouble him. He may spend a few *djimbu* on palm-wine, but there are practically no deductions from the gross profit except for losses by death of stock or by robbery.

In Kolokoto 100 *djimbu* are equivalent to from four to six cents, American money; in Luanu they may rise to a premium of 100 per cent; on the Lukula they fall to a value of three cents. Taking the mean value, a man with a capital of $5 makes $90 per annum, even if he does not add to his capital. If he chose to put all his profits into his business, he would at the end of a few years be a rich man, but, of course, long before attaining to such a fortune he would be suppressed by jealous neighbors or highwaymen. Furthermore, the nature of their trade does not admit of unlimited extension.

Credit is a well-recognized thing, not only from one market day to another, but for longer periods, and to people residing at considerable distances. Interest amounts, as a rule, to 400 per cent per annum.

Little anthropological research has been carried out in Central Africa, and the natives from inland are usually referred to by the people from the riverside, and consequently by the Europeans, as "Ngombe," which really means bushmen. Their appearance is certainly such as to inspire little confidence, their faces being considerably disfigured by cicatrices, without which no Ngombe would think himself presentable.

Not only are the Ngombe and the Bambala tribes cannibals, but most of their respective neighbors likewise, and their enemies know that if they fall into unfriendly hands they will be treated with the utmost cruelty.

IN THE LAND OF THE LIP PLUG

If I described the Ngombe as ill-looking, what shall I say about the natives I met farther up the Congo near Basoko? Here the lip plug is in general use. At an early age a small hole is pierced in the upper lip, and this, by the insertion of wooden disks of ever-increasing size, is so extended that it finally measures more than two inches in diameter.

If one considers, furthermore, that these people are cannibals and do not try to conceal it, it is easy to understand that

THEY TOIL NOT, NEITHER DO THEY SPIN, BUT AS PADDLERS THEY ARE UNEXCELLED

These Wagenyas are members of a typical tribe of fishermen, among whom all work which is not connected directly or indirectly with fishing is performed by women. No man would carry a load; if he is asked to transport some of your luggage he will agree to do so, and then send his wife or wives to perform the task. On the other hand, they are ideal paddlers, and fatigue and fear seem to be unknown to them.

a newcomer regards them with little sympathy. If, however, one lives some time among them, he gets accustomed to their lack of dress and weird ornaments, and comes at last to think these rather becoming.

Often I have heard two Europeans quarrel over the merits of the tribe with which each was best acquainted, and I have found that when I have referred to the *pelele* (the lip plug) with disgust older residents in the country have felt quite hurt.

Stanleyville, at the time of my first visit to the Congo region, was a curious mixture of an Arab, European, and negro town. Whatever harm the Arabs may have done to the natives, and there is no

doubt that in their slave-raiding expeditions they have slaughtered them by thousands, they certainly have taught them many a good thing. It was the Arabs who introduced rice, Madagascar potatoes, beans, and many useful plants. They have taught the natives cleanliness and established schools in many centers.

I had expected to secure at Stanleyville all supplies necessary for my overland journey, but when I arrived I found that the natives themselves were exceedingly short of stores. There were neither camp beds nor tents to be had; and as for food, I was able to secure four pounds of flour, some sugar and tea, a few tins of preserves, and a generous supply of pickles. These goods were expected to suffice me for four months.

PROOF OF THE CATCH IS THE SHOWING THEREOF

Like the grapes which Joshua brought back from the land of Canaan, it frequently takes two men to carry one fish caught in the Congo.

I crossed the river under the famous falls in a canoe, and then my luggage was carted by men to a place above the falls where another boat was waiting for me. It was only a dugout, but was of immense size, being manned by 40 paddlers. At every village the crew was changed, so that the men were never taken far from their homes.

BREAKING A STRIKE BY KIDNAPING A TRIBE'S WOMEN

In one place the men refused to work, and it was only through strategy that I was able to proceed. The women alone were in the village, and the men, standing at some distance, mocked me.

I instructed my boy to put a number of paddles into the boat, and then I invited the savage ladies to come aboard and sell me some food. I was relying upon the universal eagerness of the negroes in this region to trade; and the scheme did not fail me, for soon 30 women were in the boat bargaining.

Without attracting their attention, my boy unfastened the rope by which the boat was secured to a tree, and before the saleswomen were aware of what was happening they found themselves floating downstream.

The effect of this maneuver was imme-

THE SOUTHERN BAMBALA YOUTHS ARE RATHER EFFEMINATE IN APPEARANCE, BUT THEY HAVE GREAT POWERS OF ENDURANCE

Always gay, easily made happy, they are friendly toward Europeans and make most desirable neighbors and companions. The northern Bambala are strongly built and tall, but farther to the south, with increasing scarcity of food comes a slighter type, which also seems to be lighter in color. The hands and feet are small and they use their toes with great dexterity in picking up objects from the ground. In the north the women are rather homely, but in the south genuine beauty is to be found among the softer sex.

OFF ON A SHOPPING EXPEDITION IN THE CONGO

Marketing is one of the duties of the woman in Central Africa; it is also one of her great pleasures. Thus it appears that the joys of bargain hunting are not the exclusive prerogative of western civilization's womankind. All blacks are born traders, but the female of the species is more clever than the male.

A DUG-OUT LEVIATHAN OF THE CONGO

The native boats of the upper Congo are of great length; they are easily steered by two men, one in front and one behind, and Europeans usually travel by boats manned by forty or fifty paddlers. I saw one dug-out which required a crew of eighty; it was broad enough to place in it a table surrounded by four chairs. The diameter of the tree of which it was made must have been six feet.

diate. The men set out in their little canoes and demanded the return of their women. I offered to surrender one hostage for every man who would come aboard and take his place with a paddle. In half an hour I was continuing my journey triumphantly, as all the ladies had been redeemed from pawn.

THRILLING INSTANCES OF COURAGE AND LOYALTY

In my travels in this region I found many records of extraordinary acts of heroism and loyalty. One man had had his feet burned off by the Arabs, but no torture could induce him to betray the white man who was being sought. Another native had been hanged by his beard on the branch of a tree and had had his lips cut off, but he remained faithful to his friends.

One of the most tragic instances of my whole seven years' stay in the Congo occurred on the banks of the Luzubi River, when Makoba, a black boy who had proved his loyalty to me in a thousand ways and who had been responsible for saving my life when I myself had wished to lie down in the jungle and die, came to ask me if he could go to bathe in the stream.

His request granted, off he went. It was twilight, and I was sitting quietly in camp, when I heard an awful shriek: "Bwana ango, Bwana ango!" I knew it was Makoba. The cry was then repeated from a greater distance, and once again farther away.

I snatched my rifle, called to my men to follow me, and rushed to the river. At first I could see nothing, but soon I observed traces of blood, and upon examining the soil found the footprints of a leopard.

The writhing on the sand showed that Makoba had been knocked over and dragged into the water.

Holding my rifle over my head, I swam across the stream, beyond which my men soon found the spoor again, and we followed. Darkness overtook us, however, and we were forced to return to camp. I would not own myself beaten, and the next morning, after a sleepless night, we continued our search. At about 8 o'clock we found what was left of my faithful companion; the head had been torn off and half the shoulder had been devoured by a leopard.

I lay in ambush, but the whole day passed without a sign of the foe. At last, when I thought I should have to give it up because of the darkness, the beast arrived, and a bullet from an express rifle avenged Makoba.

AN ENGLISHMAN'S DEATH STRUGGLE WITH A LEOPARD

Although lions are more troublesome than leopards in the Katanga region, the

THE SMALL BAMBALA DOORWAYS OFTEN RESEMBLE ENTRANCES TO TRAPS

They are usually oblong openings. There is a special knack of getting into a hut, and the stranger who has not acquired this is sometimes unable to get in or out. In size and cleanliness, however, these huts compare favorably with those of many other tribes.

latter take a considerable toll of the weaker part of the population; they usually attack women or children.

I heard of an English mining engineer who lost his life through one of these pests of the jungle. He was hunting fowl when he found himself face to face with the big cat and had no choice of flight. He poured the contents of both barrels of a shotgun into the animal, but the leopard sprang at him, knocked him down, and inflicted terrible wounds.

The man attempted to reach his hunting knife, but whenever he made the slightest movement the leopard, which was lying on him, mauled him furiously.

After some time the jungle cat became weaker, and the Englishman succeeded in drawing his knife and stabbing it to death. When the rescuing party sent out to search for the hunter arrived, he was found lying upon the ground with the leopard still covering him, as he had not the strength to shake off the brute, and he was trying with his injured hand to roll a cigarette. Two hours later he died from loss of blood.

In my time the community of Pweto was outside the tsetse-fly belt, and we were able to keep cattle, our herd increasing splendidly. Lions never came near the place, and the hyenas, whose howling we heard every night, dared not enter the kraal. Our donkeys slept in the open, and one night a hyena attempted to carry off a foal; but it had gone to the wrong address, and the next morning we found the aggressor with its brains kicked out.

IN THE COUNTRY OF THE DESTRUCTIVE TSETSE-FLY

Some years later the destructive fly invaded this region and all the cattle were destroyed. The sleeping sickness made its appearance, and lions, too, had come, the latter in such number and with such impudence that it became necessary to post sentries at night, the men standing guard on the roofs of the houses.

What lions will do when they get into man-eating habits, I had occasion to experience on the Lukumbi River. Coming

home from one of my rambles, I reached a village situated near the river.

I could not understand why the natives received me with such unusual manifestations of joy until I learned that eight man-eating lions had taken up their residence near the settlement, and that several persons had been killed. The prowlers became so impudent that they would come at night to the village, leap over the fires which were kept up all around it, and, jumping on the thatched roof of a hut, would break it by their weight and carry off the unfortunate occupant. Now the natives expected me to shoot all eight of their enemies.

THE TRAVELER'S DOG GIVES A DANGER SIGNAL

I had just prepared for dinner and my boy was approaching with my soup tureen, a highly-treasured piece of crockery, when there resounded the well-known "Whuuuua" of the king of animals. Smash went the tureen, and the boy disappeared into the hut, from which neither threats nor cajolery could bring him, so I had to serve my own dinner.

After lighting fires around the camp and arranging with the natives to pursue the enemy the next morning, I went to bed. I slept soundly until I was awakened by Sanga, my little dog, who, shivering and trembling, was trying to crawl underneath my blanket, giving painful little whines.

I got up cautiously and opened the door of the hut. When my eyes became accustomed to the light of the full moon, I saw just beyond the fire a grayish mass, and finally I distinguished the glittering eye of a beast of prey.

With as little noise as possible, I returned to the hut and fastened a piece of paper to the front of my barrel to enable me to aim in the semi-darkness; then, kneeling and resting my rifle on the doorstep, which was about a foot high, I took careful aim and fired.

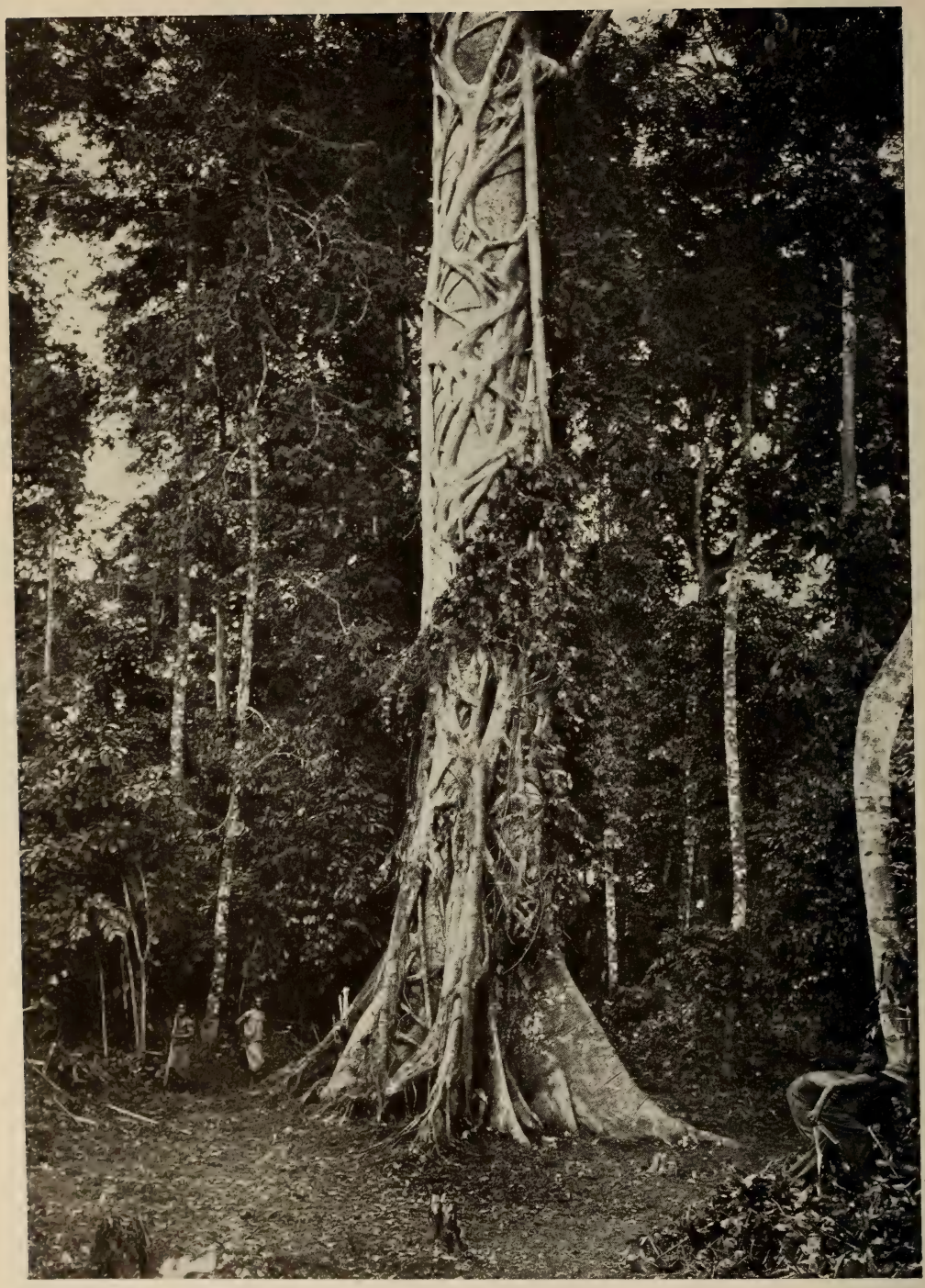
The shot aroused the whole camp and general confusion followed. My eye still on the spot where I had seen the animal, I waited; nothing moved. Then I went nearer; the little dog, howling with fear, walked in front of me. She was afraid, but she knew her duty, did Sanga, and never flinched. Nearer and nearer we came to the spot where I had seen the beast, and there we found a fine lion stone dead.

THE SCARS ON THE FACE OF THE CHIEF OF THE BAPOTOS MAKE HIM THE ADONIS OF HIS TRIBE

To make these scars on the brow, nose, and cheeks is child's play compared to the painful operation of making those on the lips. Neither boy nor girl, however, would like to be without them.

FIGHTING THE "MOST DANGEROUS ANIMAL" IN AFRICA

But there is a greater menace in Africa than the lion, the hyena, or the leopard. The mosquito is the most dangerous "animal" in Africa. You can defend yourself against the king of beasts; snakes flee before the approach of man; crocodiles are quite inoffensive on land; but the



A CLIMBING PARASITE OF THE CONGO

Many of the vines of the forest slowly, but inevitably, kill their tree hosts.

mosquito displays in its warfare against the human race an energy worthy of a better cause.

I used to begin breakfast at 5 in the morning, with the aid of two boys to fight the mosquitoes, while I breakfasted amid the fires of dried baobab fruit, which produces a strong and disagreeable smoke. But even these defenses were frequently ineffectual. I went to work, still protected by my two boys, who frantically waved branches on all sides of me, but without producing much effect. In the afternoon there was a change, but only in the boys. The first two retired exhausted, and their successors applied themselves with vigor to the work of keeping mosquitoes at bay. When evening came, dense clouds of my tormentors obliged me to retire finally under my mosquito net.

Apart from these little pests, there is an abundance of snakes in the Kinchasa region, which makes the keeping of domestic animals impossible. I have seen whole pigs swallowed by these reptiles.

ASSEMBLING A RETINUE FOR AN AFRICAN TRIP

When following the trail in Africa, it is quite impossible to venture into new country if one cannot rely upon one's own people. Consequently, though I am highly conservative, I am likely to keep my two servants for the whole time. I at once reject all who do not give complete satisfaction in the early days of their service. Accordingly, I sometimes find it necessary to engage and dismiss fully twenty boys in the first two months before I finally get one who is to my liking. On one of my journeys in the Congo I secured my boy under the following circumstances:

A European informed me that he was parting with his cook because the latter was vain and fond of dress, and never ready with the meals at the right time because he was always engaged in beautifying his person. Now a negro who adorns himself to perform his culinary duties is a real treasure.

If in a European settlement you see a man who is exceptionally dirty and disgusting in appearance, you may be sure he is a cook. The blacks insist on their wives making use of spoons and other appliances when they prepare food for their lords and masters; but precautions are deemed useless when it is only a European who is to consume the product. I have seen an exceedingly dirty individual preparing meat-balls for his master by taking the mince into his hands and rolling it on his chest until it was shaped to his liking. I may add that his master was not present.

But the aboriginal beau, whose name was Bokale, served me faithfully and gave much satisfaction till he was called to a higher sphere of duty as chief of a village. Upon learning of his weakness for self-adornment, I interviewed him at an early opportunity, giving him some good advice and practical illustrations, and assured him that for the first month he might serve up my food half cooked, burn it or otherwise render it uneatable, but that if after the expiration of his period of probation he did not serve me tip-top meals I would visit his iniquities with grievous unnamed penalties.

In the course of my adventurous years in Central Africa I came to entertain a genuine respect and, in some cases, affection for many of the black people of this little-known land whose inhabitants are so generally misjudged. The European or American who goes to Africa for the first time is prejudiced by the tales of white men on board ship or on the coast. He judges whole tribes by his observations of the negroes on the coast—those who have all the vices of both the black and white races and the virtues of neither.

BIDDING FAREWELL TO THE PEOPLE OF CONGO LAND

If one wishes to know the negro as he is, let him abstain from forming any opinion until he leaves the littoral and meets the native of the interior, uncorrupted by alcohol, European morals, and the love of gain either by fair means or fraud.

I have twice crossed the Congo Free State and have never come across a tribe which was not naturally good-tempered and, in most instances, hospitable and trustful.

On the day that I took my final leave

A PYTHON BEING MADE TO DISGORGE ITS DINNER—A FULL-GROWN PIG

"Pythons are very common in the Congo. Some of them are as much as twenty-five feet in length and can swallow a whole goat, or, as in the case depicted, a pig. No instance, however, has come to my knowledge of a child having been killed by them. When a snake has been killed by the natives, they make it disgorge its prey, and eat the snake food as well as the snake."

of Africa my steamer was scheduled to depart at 5 in the morning. I was awakened at dawn by a considerable stir on the quay. The people of the surrounding villages had come to see me off. When my luggage was put on board, every one fought for the privilege of rendering me this last service. Then the leave-taking took place. I had to shake many black hands, pat children on the heads, and give a solemn promise to return in the near future.

I went on board and looked from the bridge down on the huge crowd, among whom was none who was not my friend. A curious mixture of feelings came over me. I was unhappy at the thought of leaving this land, and, on the other hand, I could not but feel proud to see the regret at my departure.

While preparations were being made for pushing off, a native cried out, "Let us sing Deke's (my name among the blacks) favorite song," and the whole assemblage broke into voice.

The steamer whistled thrice, the captain rang the engine-room telegraph, and off we went, while there stood my dear black friends waving their hands, cloth, branches, anything that came to hand, and shouting in the native tongue, "Good-by, Deke; don't forget us."

The most famous musical instrument in the world

Victrola *fame* is based on Victrola *quality*. More people all over the world have wanted and have bought the Victrola than any other musical instrument of its type. It is the instrument which the world's greatest artists have selected as the best. It is certainly the instrument which *you* will want for your home.

Victors and Victrolas $12 to $950. Visit your Victor dealer.

VICTROLA

"Victrola" is the Registered Trademark of the Victor Talking Machine Company designating the products of this Company only.
New Victor Records demonstrated at all dealers on the 1st of each month.

Victor
"HIS MASTER'S VOICE"
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To insure Victor quality always look for the famous Trademark "His Master's Voice" on all products of the Victor Talking Machine Company

Important Notice. Victor Records and Victor Machines are scientifically coordinated and synchronized in the processes of manufacture, and should be used together to secure a perfect reproduction.

VICTOR TALKING MACHINE CO., CAMDEN, N. J.

True Companionship

is founded on a community of tastes. ***Superspun,*** the supreme silk shirting, typifies the companionship of men of taste and discrimination—those who appreciate the distinctive designs and lasting qualities of Empire Loomcraft Silks.

Superspun

Formerly called Empire Wash Crepe

In having your shirts made to order look for the Empire Loomcraft name in the selvage. Ready-to-wear, the label is sewed in the shirt.

Empire Loomcraft SILKS
REG. U. S. PAT. OFF.

Other distinctive Empire Loomcraft silks are Mellowspun*, Shapspun*, Guildcrepe*, Chateau*, Commodore Crepe*, and Kingcloth*. (*Reg. U. S. Pat. Off.)

A wider vision for Investors

AMERICA'S helping hand which has welcomed the world's people to its shores will extend generously to the old world the needed credit to reconstruct its industries. Thus will be strengthened the foundations of law and peace and order.

In the extension of well founded credit to foreign countries, The National City Company plans to do its part. This company, through its own organization and representatives in foreign countries, is already equipped for the investigation and marketing on a large scale of the world's high character securities.

Through our Correspondent Offices in 50 American cities, many of them connected by private wires, the American investor may be placed in touch with investment opportunity, both here and abroad, and may purchase carefully chosen, recommended bonds and short term notes.

Your investment in these securities hastens the work of reconstruction, helps provide for the extension of credit, and keeps your funds earning a liberal income.

* * *

To secure a list of bonds and short term notes which we recommend for purchase, please write for AN-109.

THE NATIONAL CITY COMPANY
NATIONAL CITY BANK BUILDING
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You will find a National City Company Correspondent Office in 50 of the leading cities of the country.

In each of these offices you can purchase Government, Municipal, Railroad, Industrial, and Public Utility Bonds of the highest character.

Each of these offices is equipped to render unusual service to investors generally, and to bond buyers in particular.

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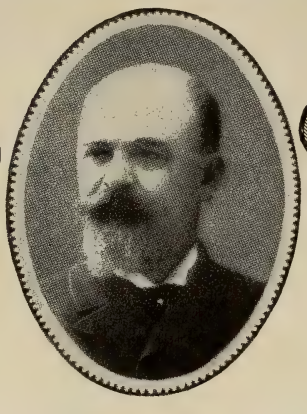
BEEMAN'S

ORIGINAL PEPSIN



CHEWING GUM

Indigestion is the most universal of human complaints

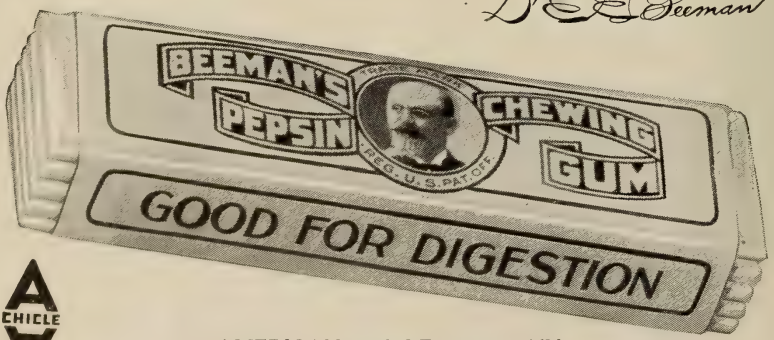
IT is rare to find a successful American business man or woman who has not suffered more or less from some slight form of indigestion, causing distress after eating.

To many an individual, dyspepsia is the price of success—the direct result of neglecting—often abusing—one's digestion, eating hurriedly, irregularly, and under high mental strain.

And yet how greatly the consequences of this neglect could be reduced by the routine, systematic use of my original pepsin chewing gum for ten to twenty minutes after every meal. An adequate flow of saliva would be assured, the digestive processes aided, and nerve tension relaxed, with its essential improvement in the gastric blood supply.

In a word, chewing Beeman's Original Pepsin Gum will bring prompt relief to many a sufferer—and in a manner pleasant, safe, and convenient.

W. E. Beeman



CHICLE

AMERICAN CHICLE COMPANY

New York Cleveland Chicago Kansas City San Francisco

"There's a fire at Mary's School!"

No use to 'phone! Try to keep calm until we can find out whether Mary has escaped.

This is happening in some city, on an average, each day or two during the school year. Read about the cause and the remedy below.

Suppose it was your girl?

NOT long ago there was a fire in a business college in the heart of the business district of a Pennsylvania city. Five hundred girls escaped; but—

Three were injured—

Seven were overcome by smoke—

Five hundred mothers are now afraid to trust their daughters in such a building.

Are you allowing that sweet young daughter of yours, or the son who will soon be able to help Dad in his business, to spend their long school hours in a building that looks all right, but is no more than a deadly fire trap?

All over the country, in large cities and little villages, thousands upon thousands of boys and girls go to school in just such dangerous buildings.

Now, since children are compelled by law to go to school, common humanity demands that their lives be safeguarded against fire.

Fire drills?—Yes. Fire escapes? Of course! *But* if the flames spread so quickly as to cut off windows and stairways, all the fire drills and fire escapes in the world will not bring back one of the pitiful little victims of official negligence. Fire never does the expected thing. The only thing to do is to stop the first tiny flicker of flame.

With Grinnell Automatic Sprinklers if a fire starts in a basement, or anywhere else, it will be kept right where it starts and be extinguished quickly. *When the fire starts the water starts.*

Men have protected some five billion dollars of their business property from fire by the use of automatic sprinklers.

Meanwhile our wonderful humanitarian institutions and our fine schools continue to burn, criminally jeopardizing thousands of lives.

With a one cent post card you might save lives. Who knows? Should you hesitate to send for a free booklet that tells just what to do?

Read *"Fire Tragedies and Their Remedy"*

If you feel too indifferent to send for a free booklet telling what to do, what right have you to blame others when a horrible calamity occurs in your town? Think of your schools and write today, now, for this intensely interesting booklet. Address General Fire Extinguisher Company, 293 West Exchange Street, Providence, R. I.

GRINNELL

AUTOMATIC SPRINKLER SYSTEM

When the fire starts the water starts

A NEW DAY HAS DAWNED FOR TEACHING GEOGRAPHY

The Family at Work

Here is Took-a-le-kee'-ta's cousin, An'ne-vik, with her mother, father, and baby brother, Nee-wak. She likes to sit on the log and watch father carve a knife or a scraper from walrus tusks. Father's name is Koo-gak, and he is often called Koo-gak the Hunter. Her mother's name is Too'ma-sok.

On the back of mother's fur cloak she has a warm pocket, in which Nee-wak rides safe and cozy even when the cold winds sting mother's face. In the house she takes off her coat with the fur hood and ties him to her back with soft strips of leather.

She has fur slippers and seal-skin boots to wear over them. Do you think she must be too warm in her fur clothes? Oh, no! In winter she wears two fur suits, the inner with the soft fur next to her skin.

NATIONAL GEOGRAPHIC PICTURES ON SEPARATE SHEETS FOR SCHOOLS

At the request of thousands of teachers, the incomparable National Geographic pictures are now available. They are printed on heavy, glossy-coated paper, NINE BY ELEVEN inches in size, with about two hundred words of illuminating text accompanying each one. (Page 3 of the Eskimo Series is shown above in miniature, one-fifth actual size.)

Selected by a trained teacher of geography from thousands of remarkable pictures which the National Geographic Society has gathered from every out-of-the-way corner of the globe, these "talking photographs" are being welcomed by the educators of the country as a most valuable aid in their work.

These sets are now ready for delivery. Other series are being compiled.

"ESKIMO LIFE" shows caribou, whales, seals, polar bears, snow houses, grown folk and children at work and at play. 24 pictures (2 in full color).

"SAHARA LIFE" pictures the ostriches, camels, and caravans, the tent homes, the expanse of wind-tossed sand, the oasis, and date harvest. 24 pictures (2 in full color).

"THE LAND, THE WATER, THE AIR" illustrates cape, bay, delta, divide, volcano, geyser, etc., 48 pictures (4 in full color).

"THE UNITED STATES" presents the great rivers, mountain peaks, natural wonders, parks, and chief public buildings of our own country. 48 pictures (4 in full color).

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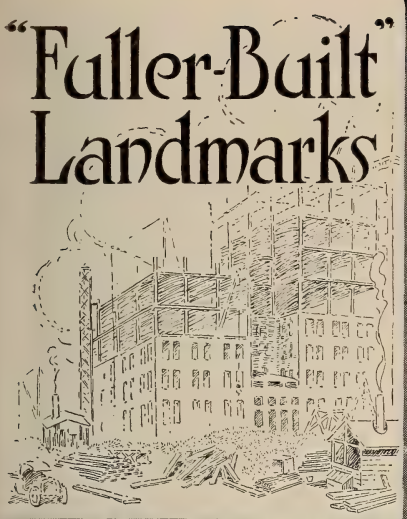
"Fuller-Built" Landmarks



GEORGE A
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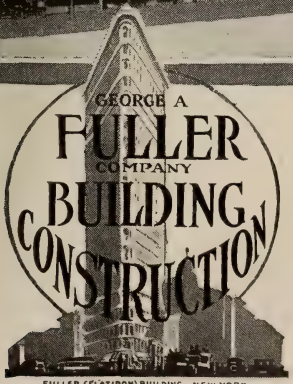
COMPANY
BUILDING
CONSTRUCTION



FULLER (FLATIRON) BUILDING, NEW YORK

IN nearly every important city and industrial center "Fuller-Built" Landmarks attest the part the George A. Fuller Company has played in building construction work since its organization in 1885.

The Pennsylvania and Commodore Hotels were built and completed at the same time that the company was building the mammoth U. S. Army Warehouses and Wharfs at New Orleans and carrying on important work aggregating over 51 million dollars in 38 cities.

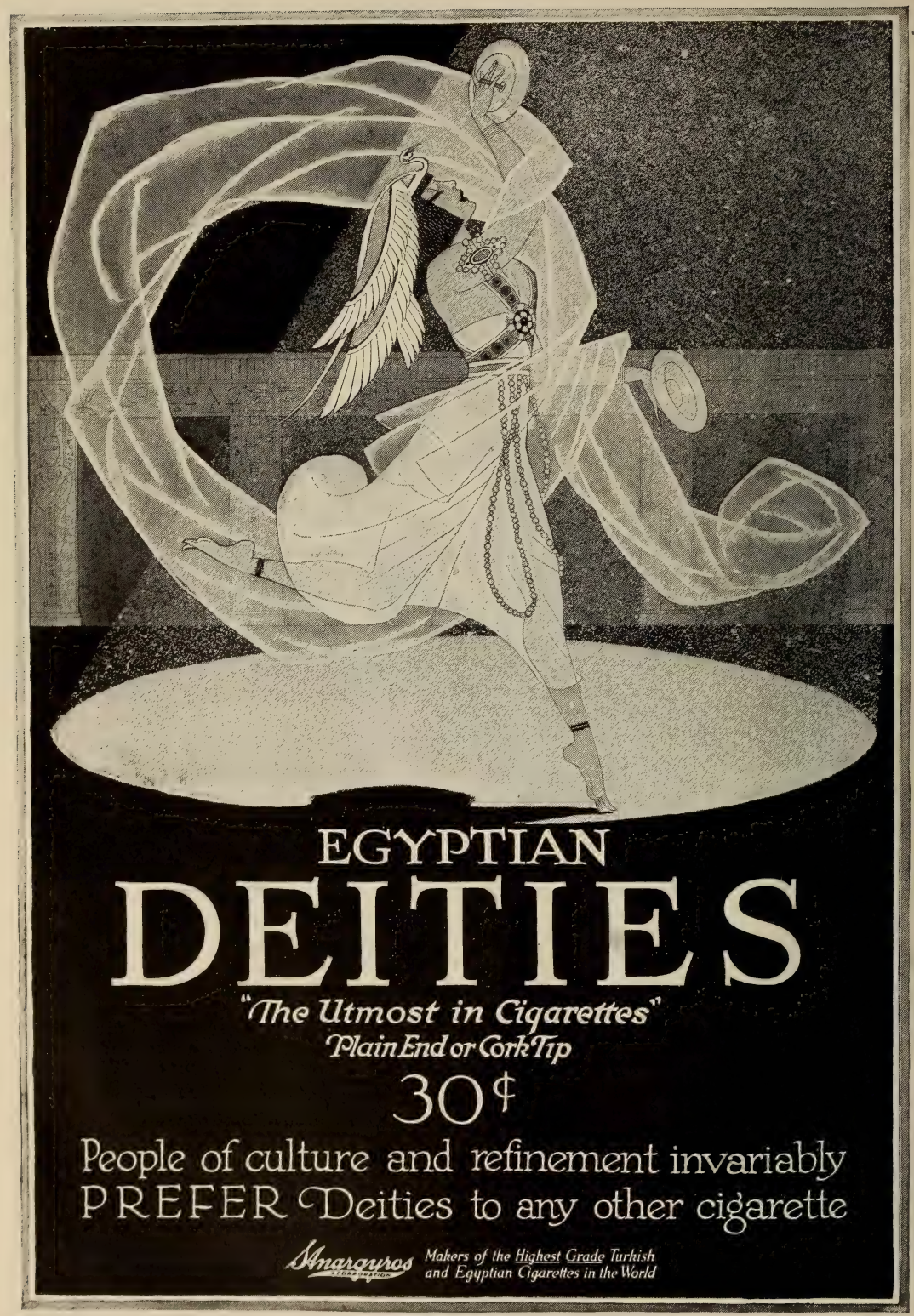
The experience which made this record possible is available to architects and owners of property who contemplate a building operation, and will be found particularly valuable at this time when such unusual conditions confront the man about to build.

Consultation is solicited through the company's various offices, as noted below.

George A. Fuller Company

New York	Washington	Chicago
Boston	Baltimore	Detroit
Philadelphia	Pittsburgh	St. Louis
Montreal	Cleveland	Kansas City

Buffalo New Orleans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Plain End or Cork Tip
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PREFER Deities to any other cigarette
Anargyros
Makers of the Highest Grade Turkish
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Why That Tartar

If You Keep Teeth Clean?

All Statements Approved by High Dental Authorities

It is Due to Film

TARTAR shows that teeth are not kept clean. The basis is a slimy film. If you removed it daily tartar would not form.

That film on your teeth causes most tooth troubles. It is ever-present, ever-forming. You can feel it with your tongue.

The film is what discolors, not the teeth. It holds food substance which ferments and forms acid. It holds the acid in contact with the teeth to cause decay.

Millions of germs breed in it. They, with tartar, are the chief cause of pyorrhea.

This film is viscous, so it clings. It gets into crevices and stays. The ordinary dentifrice does not dissolve it. The tooth brush leaves much of it intact. That is why the best-brushed teeth so often discolor and decay.

Every dentist knows this. Dental science has for years sought a way to combat that film. That way has now been found. And, for daily use, it is embodied in a dentifrice called Pepsodent.

We ask you to write for a free 10-Day Tube and learn what it means to your teeth.

Watch It Disappear

Get this free tube of Pepsodent and use like any tooth paste. Note how clean the teeth feel after using. Mark the absence of the slimy film. See how the teeth whiten as the fixed film disappears. You will know in a few days what clean teeth mean.

Pepsodent is based on pepsin, the digestant of albumin. The film is albuminous matter. The object of Pepsodent is to dissolve it, then to constantly combat it.

The way seems simple, but for long it seemed impossible. Pepsin must be activated, and the usual method is an acid harmful to the teeth.

Then the invention of a harmless activating method made this application possible. And it seems to solve the problem of this tooth-destroying film.

Pepsodent has been proved under able authorities by many clinical tests. Leading dentists all over America have come to endorse and adopt it. Now we urge you to try it.

Pepsodent PAT. OFF. REG. U. S.

The New-Day Dentifrice

A Scientific Product — Sold by Druggists Everywhere

Send the Coupon for a 10-Day Tube

Note how clean the teeth feel after using. Mark the absence of the slimy film. See how the teeth whiten as the fixed film disappears.

Compare the results with the methods you now use. Judge for yourself which best protects the teeth. Do this for your sake and your children's sake. Cut out the coupon now. (223)

Ten-Day Tube Free

THE PEPSODENT COMPANY,
Dept. 698, 1104 S. Wabash Ave., Chicago, Ill.
Mail 10-Day Tube of Pepsodent to

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KARPEN *furniture*

BECAUSE of its beauty, its fineness and its individualism, Karpen Furniture has no peer in furniture, either of the past or present. The institutional aim is to interpret the high ideals of the old masters in modern form. Karpenesque Upholstered Furniture is the realization of that aim. For sale by leading dealers everywhere.

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METAL WEATHER STRIPS

Make Them Safe and Practical

The artistic casement opening has been a source of discomfort to the house owner because of the continual leakage of rain and wind.

MONARCH strips seal the unavoidable cracks around the casement frame, making them weather-tight to the ingress of water and cold and air-tight to the escape of money-made heat in winter.

In the sun parlor, on the sleeping porch, wherever a 100 per cent opening is required, MONARCH strips give operating efficiency and a guarantee of satisfaction.

Look up "MONARCH" in the phone book, or write us for name of our nearest representative.

Monarch Metal Weather Strip Co.
5100 Penrose Street
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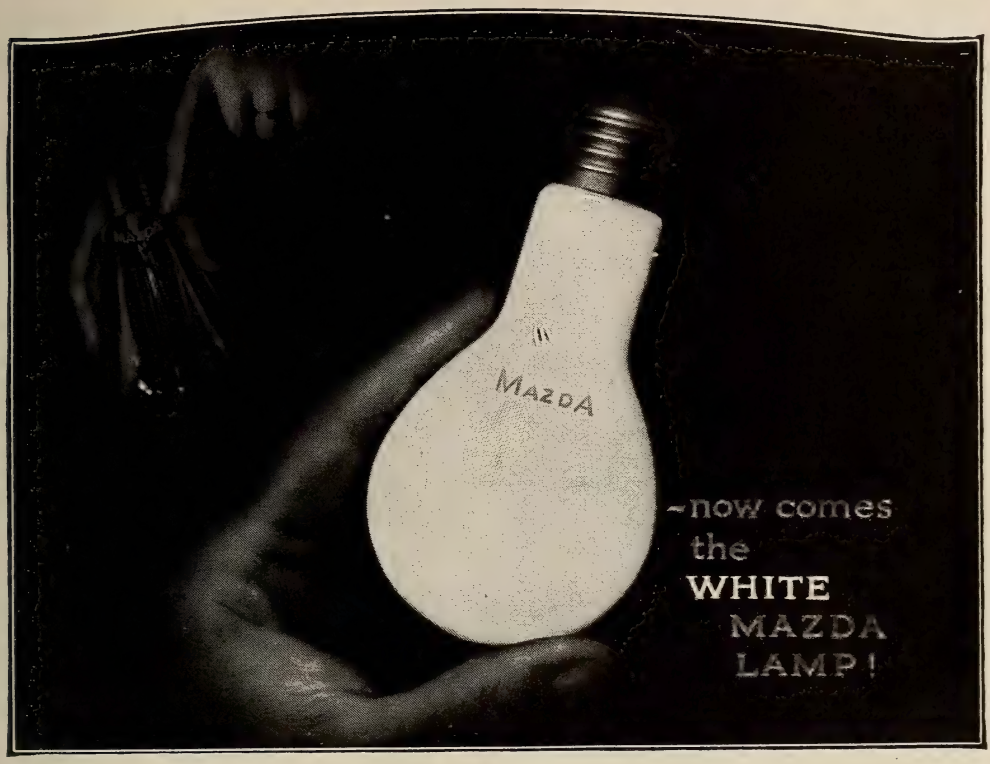
"Weather strips are 100 per cent fuel conservation"
U. S. Fuel Administration
P. B. NOYES, *Director of Conservation*
August 23, 1918

MONARCH
METAL WEATHER STRIPS

MAZDA

"Not the name of a thing, but the mark of a service"



ALSO on this new lamp—the WHITE MAZDA—you find the mark of MAZDA Service. The high efficiency of this lamp, and its softened and gratefully mellowed brilliance are fresh indications of the fruitfulness of MAZDA Service in its constant search for better light.

MAZDA is the trademark of a world-wide service to certain lamp manufacturers. Its purpose is to collect and select scientific and practical information concerning progress and developments in the art of incandescent lamp manufacturing and to distribute this information to the companies entitled to receive this service.

MAZDA Service is centered in the Research Laboratories of the General Electric Company at Schenectady, N. Y. The mark MAZDA can appear only on lamps which meet the standards of MAZDA Service. It is thus an assurance of quality. This trademark is the property of the General Electric Company.

47x-2

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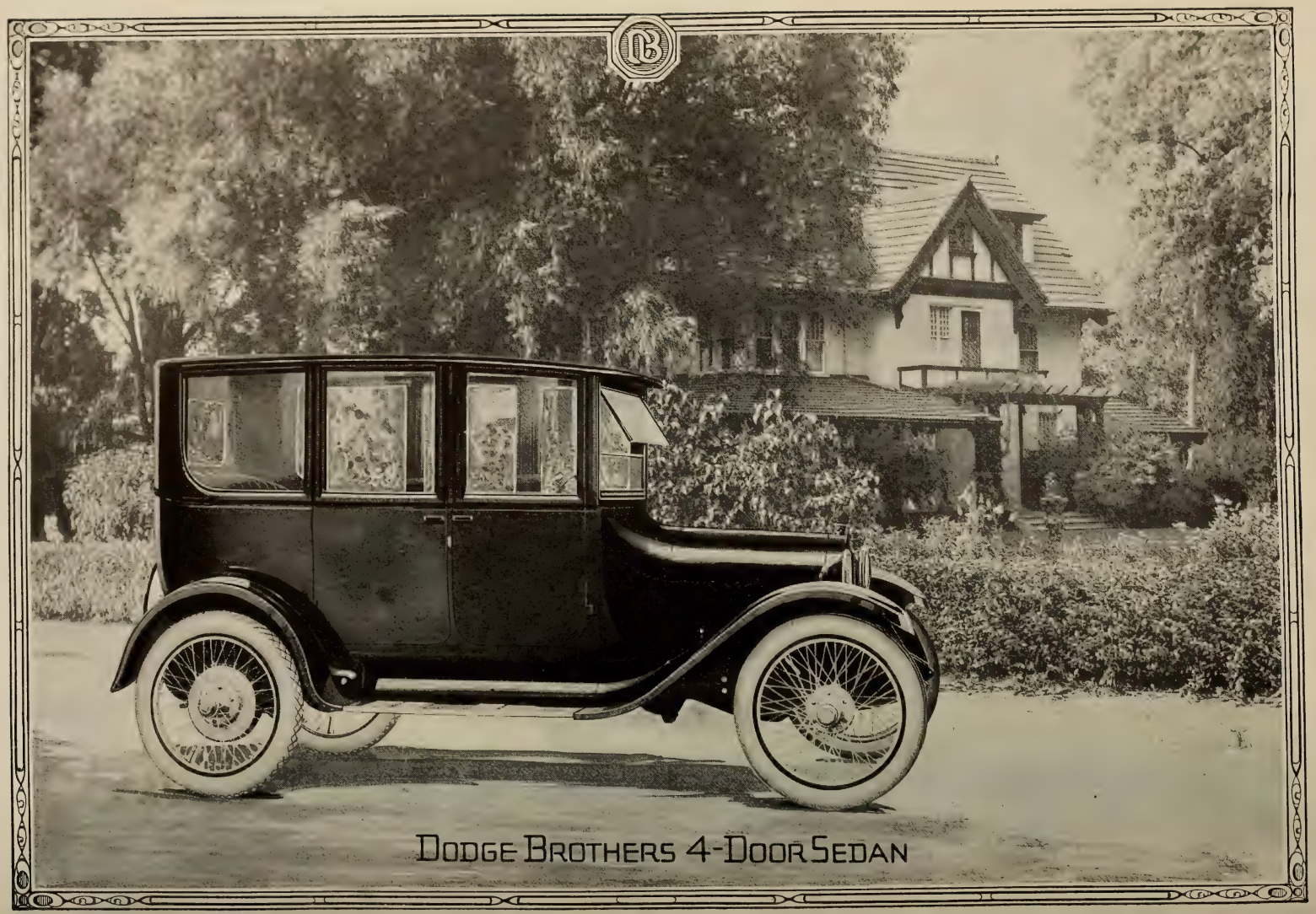
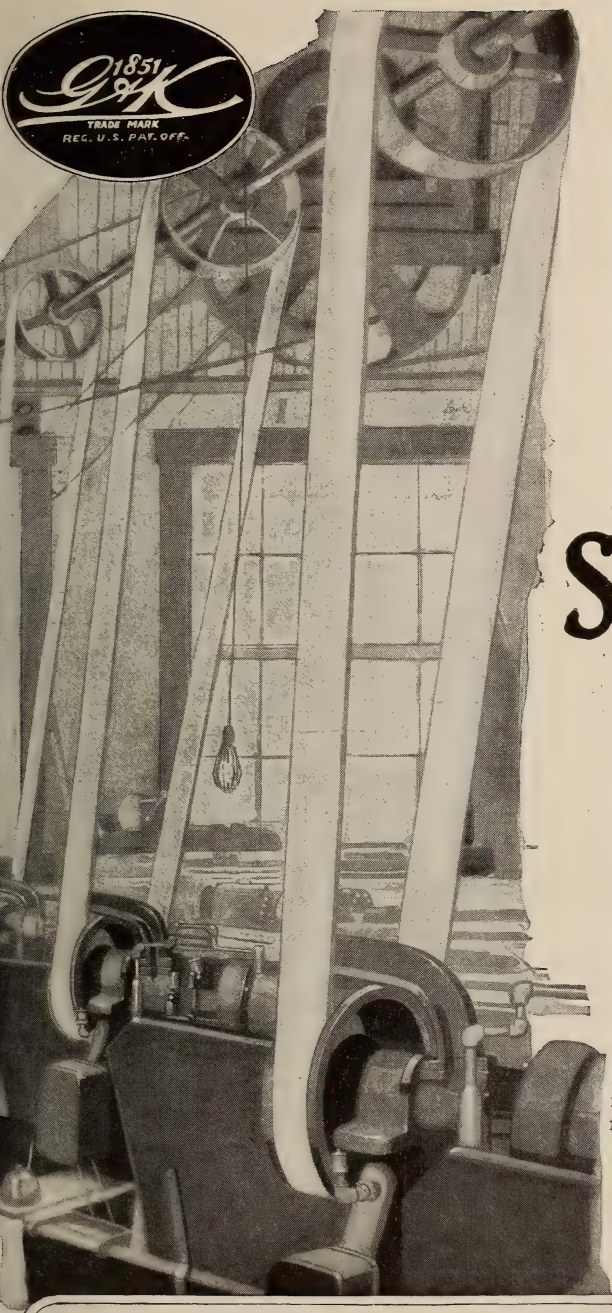


DODGE BROTHERS 4-DOOR SEDAN



"The Pullinest Belt"

The men in a certain munitions shop were on piecework. There always was a "howl" when a new belt was put on. They claimed no new belt would pull like an old one.

As an experiment SparOak Belting was installed. Immediately the "howl" ceased, because production increased and, of course, the operators received more pay.

Today there is never a complaint when a new belt is installed, providing it is one of the "pullinest" kind, as they call SparOak.

SparOak Belting

SparOak Belts grip from the start. A two-ply belt, the pulley side is G & K Spartan, a leather with the greatest pulley-gripping power ever attained in a belting material; the outer side is the finest quality G & K oak-tanned stock.

The oak-tanned outer ply gives rugged endurance to withstand the severest service conditions. The Spartan leather next the pulley insures a firm grip.

If you have a drive that is troubling you, write us about it. The Graton & Knight Standardized Series includes belts for every kind of drive. Our booklet on Standardization in belting describes all of them. It is sent free on request.

The Graton & Knight Mfg. Co.
Worcester, Mass., U. S. A.
Oak Leather Tanners, Makers of Leather Belting and Leather Products
Branches and Distributors in all Principal Cities

SPAROAK

Graton & Knight
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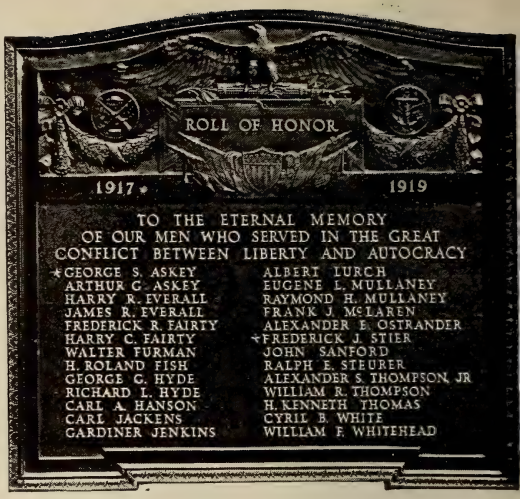

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---------- *191*

To the Secretary, National Geographic Society,
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I nominate ----------

Address ----------

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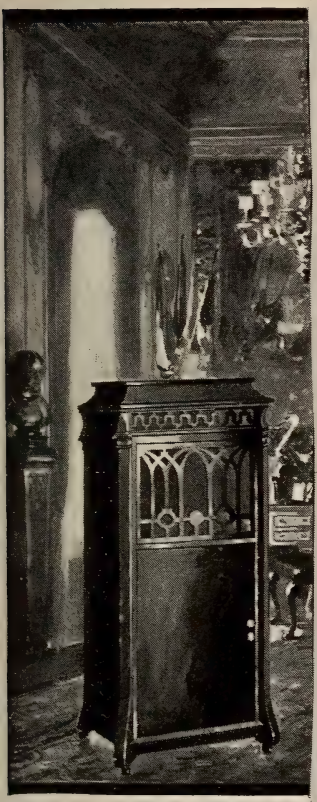
for membership in the Society

Name and Address of Nominating Member

A Letter from Lady Randolph Churchill

Lady Randolph Churchill

Lady Randolph Churchill is the mother of Winston Churchill, Secretary for War in the British Government and the sister-in-law of the Duke of Marlborough.



This interior shows the Chippendale Cabinet. There are sixteen other Edison Period Phonographs

8 Westbourne Street
Hyde Park
May 23rd 1919

What an extraordinary man Mr Edison is —
He perfects his phonograph to a point
where its realism is astounding. Then he
determines to make each Edison Phonograph,
even the least costly, an attractive piece of
furniture. Instead of the usual dentist-
like looking cabinet, his designers have
succeeded in putting the character and
feeling of the best periods into his
phonograph cases. These graceful and
artistic productions will be hailed with
delight by all who can afford them, and
will cause Mr. Edison's new phono-
graph to be received in many houses
where less worthy machines have not
been welcomed heretofore.

Jennie Churchill

(Her letter)

"What an extraordinary man Mr. Edison is. He perfects his phonograph to a point where its realism is astounding. Then he determines to make each Edison Phonograph, even the least costly, an attractive piece of furniture. Instead of the usual dentist-like looking cabinet, his designers have succeeded in putting the character and feeling of the best periods into his phonograph cases. These graceful and artistic productions will be hailed with delight by all who can afford them, and will cause Mr. Edison's new phonograph to be received in many houses where less worthy machines have not been welcomed heretofore."

THIS letter comes from the best furnished house in all England. Its writer is England's greatest authority on furniture. Praise from Lady Randolph Churchill is the Old World's stamp of approval on Mr. Edison's adaptations of Europe's richest furniture treasures.

A reading of her letter, however, shows that Lady Churchill has been led by her furniture-knowledge into a misconception. So artistically conceived, so exquisitely made are these Edison Period Cabinets that she has drawn the very natural conclusion that they can be afforded by only the fortunate few. This is absolutely contrary to the fact. Mr. Edison has placed authentic period cabinets within the reach of every one. He has required that a period cabinet be developed for each New Edison—even the lowest-priced models.

These wonderful instruments in their beautiful cases are pictured and described in our new book, "Edison and Music." Write for it. Thomas A. Edison, Inc., Orange, N. J.

The NEW EDISON

"The Phonograph with a Soul"

"Mention The Geographic—It identifies you"

PYORRHOCIDE
POWDER
ANTISEPTIC

for Pyorrhea prevention

Tender, Soft, Bleeding Gums

are the first symptoms of pyorrhea. If unchecked, pyorrhea causes loss of teeth and menaces health.

Pyorrhocide Powder was scientifically compounded for the specific purpose of restoring and maintaining gum health. It is the only dentifrice whose value in treating and preventing pyorrhea has been demonstrated in clinics devoted exclusively to pyorrhea research and oral prophylaxis. That is why it is so widely prescribed by the dental profession.

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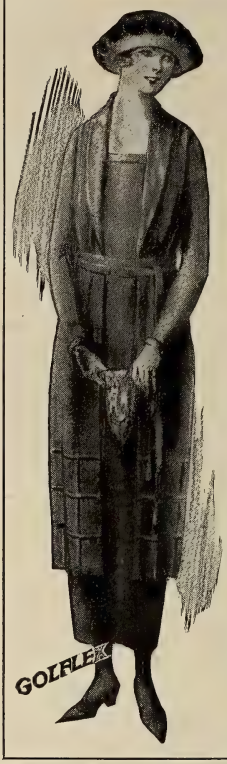

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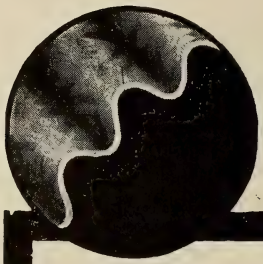

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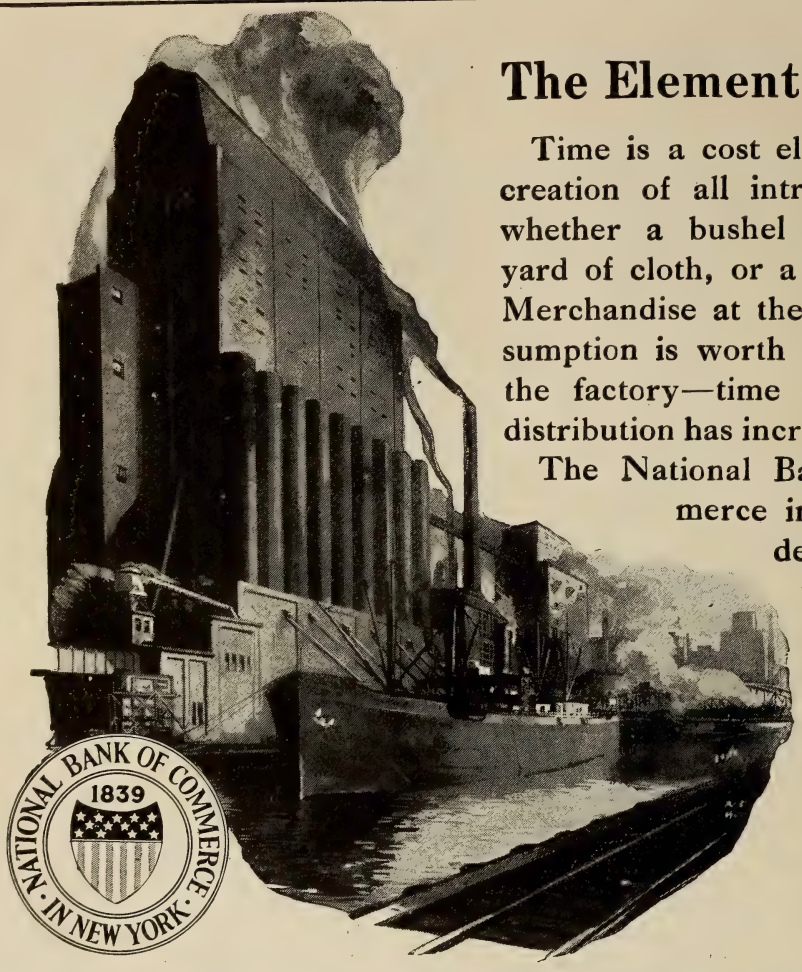

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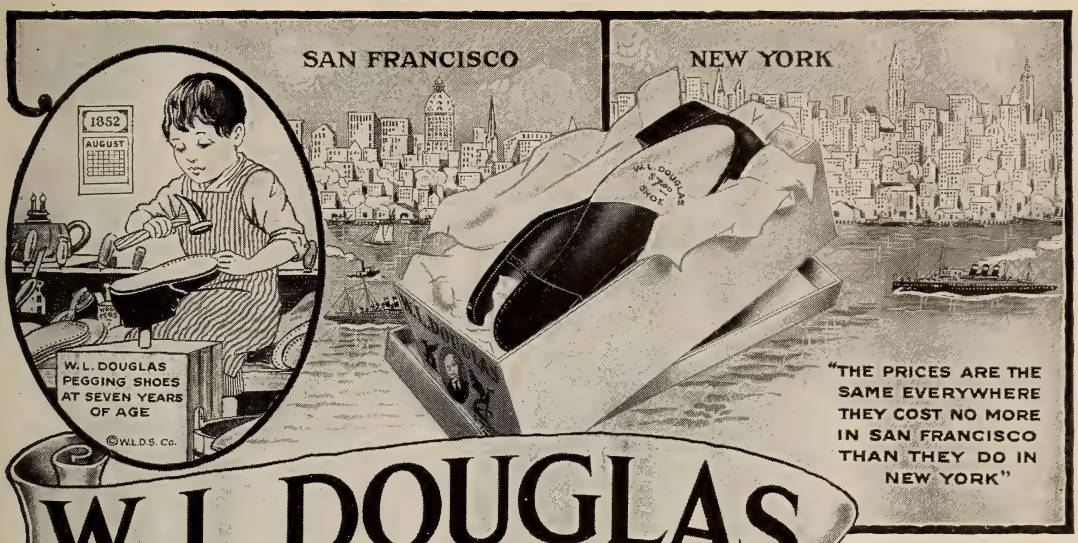
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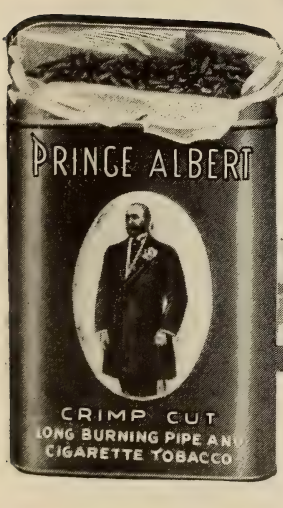

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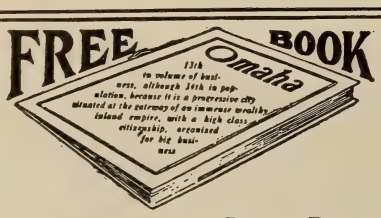
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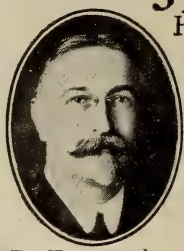

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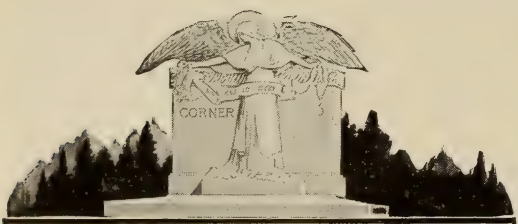

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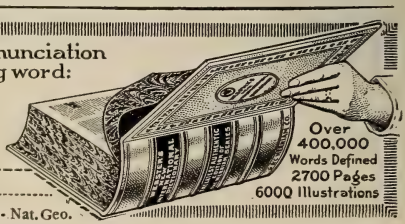

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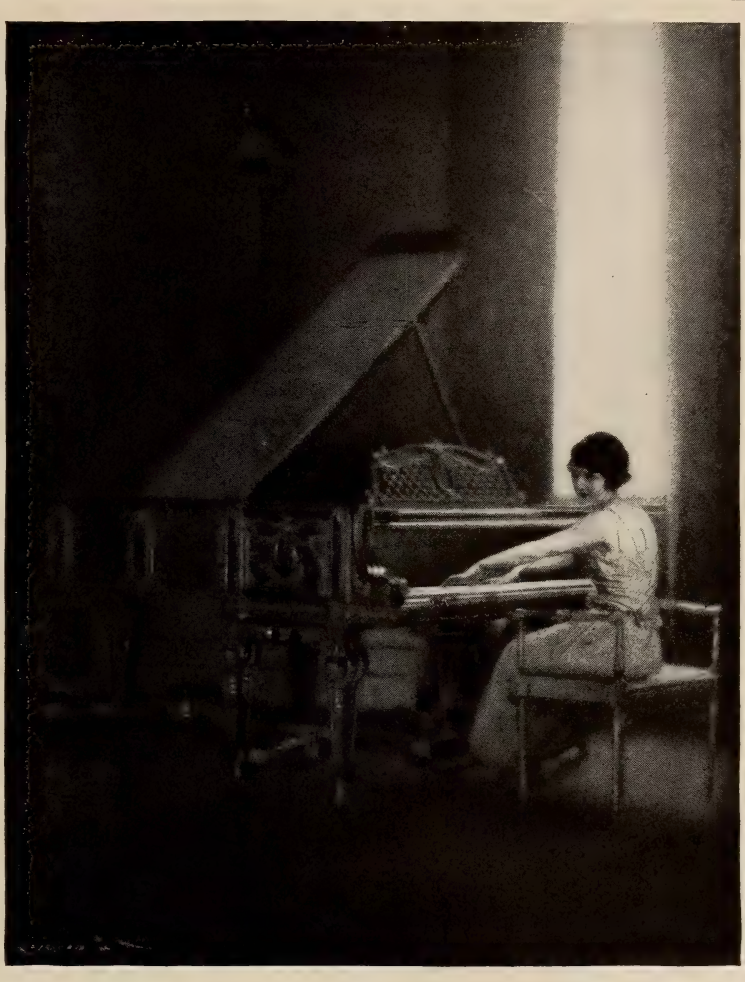

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VOLUME XXXVI NUMBER FIVE

THE NATIONAL GEOGRAPHIC MAGAZINE

NOVEMBER, 1919

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To carry out the purpose for which it was founded thirty-one years ago, the National Geographic Society publishes this Magazine. All receipts from the publication are invested in the Magazine itself or expended directly to promote geographic knowledge and the study of geography. Articles or photographs from members of the Society, or other friends, are desired. For material that the Magazine can use, generous remuneration is made. Contributions should be accompanied by an addressed return envelope and postage, and be addressed: Editor, National Geographic Magazine, 16th and M Streets, Washington, D. C.

Important contributions to geographic science are constantly being made through expeditions financed by funds set aside from the Society's income. For example, immediately after the terrific eruption of the world's largest crater, Mt. Katmai, in Alaska, a National Geographic Society expedition was sent to make observations of this remarkable phenomenon. So important was the completion of this work considered that four expeditions have followed and the extraordinary scientific data resultant given to the world. In this vicinity an eighth wonder of the world was discovered and explored—"The Valley of Ten Thousand Smokes," a vast area of steaming, spouting fissures, evidently formed by nature as a huge safety-valve for erupting Katmai. By proclamation of the President of the United States, this area has been created a National Monument. The Society organized and supported a large party, which made a three-year study of Alaskan glacial fields, the most remarkable in existence. At an expense of over $50,000 it has sent a notable series of expeditions into Peru to investigate the traces of the Inca race. The discoveries of these expeditions form a large share of the world's knowledge of a civilization which was waning when Pizarro first set foot in Peru. Trained geologists were sent to Mt. Pelee, La Soufriere, and Messina following the eruptions and earthquakes. The Society also had the honor of subscribing a substantial sum to the historic expedition of Admiral Peary, who discovered the North Pole April 6, 1909. Not long ago the Society granted $20,000 to the Federal Government when the congressional appropriation for the purchase was insufficient, and the finest of the giant sequoia trees of California were thereby saved for the American people and incorporated into a National Park.

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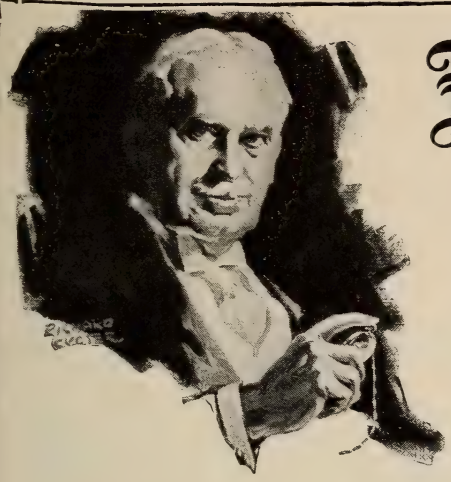
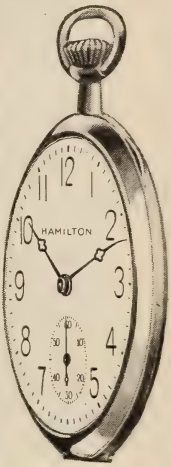


Hamilton Watch

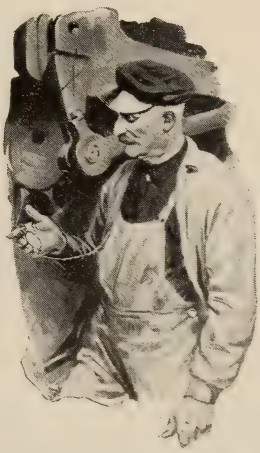
"The Watch of Railroad Accuracy"



With President and Engineer Hamiltons Are Equally Popular

The railroad president, with his many appointments and hurried trips 'cross country, finds an accurate watch one of his greatest aids.

And in busy terminals, in yards and roundhouses, in every engine cab, are men who must perform their duties always with an eye on the time. On the accuracy of the watches they carry depends your safety when you travel—depends the speedy, undelayed progress of the trains you take.



Because of their remarkable accuracy, Hamilton Watches are in demand in every branch of railroading—from the executive office to the lonely signal tower. Hamilton popularity as a railroad timekeeper has never been excelled.

But any executive, any man or woman, who wants to be efficient in planning and carrying out the day's work, should have a Hamilton.

Are you planning to make a gift? Then consider the Hamilton Watch. There's scarcely any occasion, any season, that the Hamilton would not make an appropriate, an ideal, gift.

There are Hamilton watches for every taste—thin models and wrist watches for men, watches especially built for rough service, and ladies' bracelet models. The prices range from $36.00 to $185.00. Movements, $19.00 (in Canada $20.50) and up. And there's accuracy, beauty, and enduring service in every Hamilton. See them at your jeweler's.

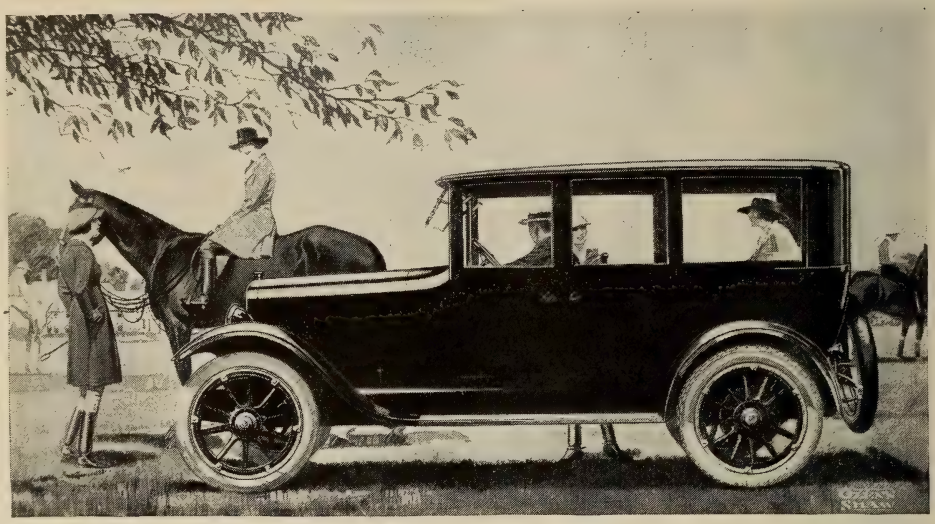
Send for "The Timekeeper." There are some interesting facts about fine watch-making in this little booklet, and the various Hamilton models are illustrated with prices.

HAMILTON WATCH COMPANY,
Lancaster, Pa.

The "Lackawanna Limited," crack train into New York City on the Delaware, Lackawanna & Western, is piloted by a veteran engineer and run on Hamilton time. Engineer Charles Stevenson has been at the throttle for nearly three decades, and for 19 years has relied upon his Hamilton Watch for the right time.

CHANDLER SIX

Famous For Its Marvelous Motor



The Year's Most Pleasing New Sedan

THE season offers no other sedan so pleasing in the beauty of its lines and its furnishings as the new series Chandler Sedan. And there is none that may be compared with it at anything like its price.

The new Chandler Sedan is the highest expression of years of development in the creation of closed bodies. It is beautiful to look at, and most comfortable to ride in. It has style and refinement that must appeal to those who care for the finer things.

This car seats seven persons most comfortably, or five when the auxiliary chairs are not in use. The front seat is solid, not divided as in previous models, and the window posts are a permanent part of the body, not removable. The windows, however, may be lowered away or adjusted to suit the weather and the wish. The interior is upholstered in silk plush of pleasing pattern for cushions and plain tone for head lining. Interior fittings are in dull silver finish of Colonial design.

Despite the largest production in the history of the Chandler company, the demand for the new series sedan will quickly consume the production for weeks to come. Your early order will be a safeguard against disappointment.

All Chandler bodies are mounted on the same standard Chandler chassis, famous for its marvelous motor

SIX SPLENDID BODY TYPES

Seven-Passenger Touring Car, $1795 *Four-Passenger Roadster, $1795*

Four-Passenger Dispatch Car, $1875

Seven-Passenger Sedan, $2795 *Four-Passenger Coupe, $2695* *Limousine, $3295*

(All prices f. o. b. Cleveland)

Dealers in all Principal Cities and Hundreds of Towns

CHANDLER MOTOR CAR COMPANY, CLEVELAND, OHIO

Export Department: 1790 Broadway, New York Cable Address: "CHANMOTOR"

General Motors Trucks
–on Laundry Routes

AN increase in collection and delivery area to four times that covered by horse drawn vehicles has been effected by the Winchester Laundry, Boston, through the use of motor trucks.

Four GMC Trucks, ¾ to 1 ton capacity, are operating over the longer routes.

With horse drawn vehicles, only the close-in routes could be covered successfully, and the income shown could not average more than $240 per vehicle per week.

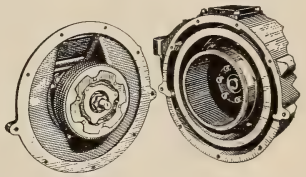
GMC Trucks covering the longer routes are able to bring in business averaging $400 per truck at an increase in weekly operating expense over horses of only $20.

This increase of 66⅔ per cent in volume of business with an increased collection and delivery expense of only 35 per cent has meant an increase in profit of still greater proportion.

The GMC Model 16, ¾ to 1 ton truck, is the model standardized by the War Department for all work requiring a truck of that capacity.

GMC Trucks in the war made a remarkable record in the severest kind of ambulance work.

GMC Trucks are built and backed by the General Motors Corporation, the strongest organization in the automotive industry.



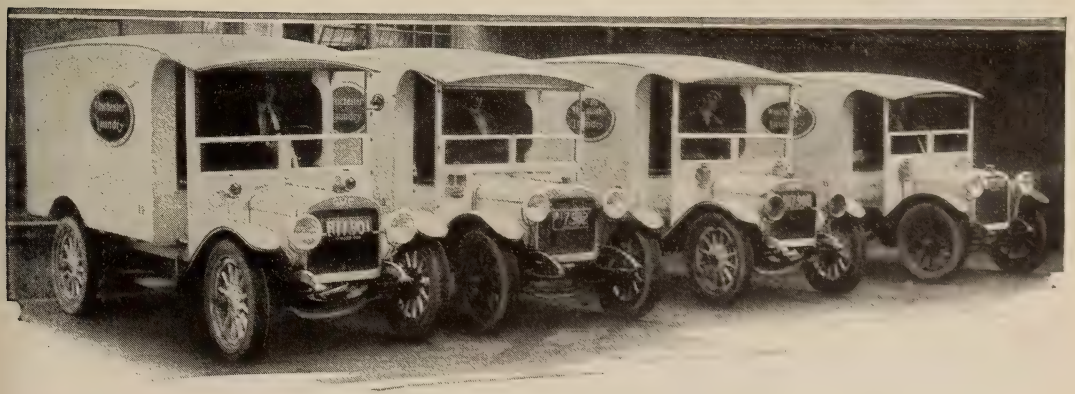
The GMC Multiple Disc Dry Plate Clutch will not slip, therefore cannot burn out; is very smooth, saving engine, rear axle, and transmission. Requires no adjustment; no lubrication; nothing to wear out except the asbestos plate rings.

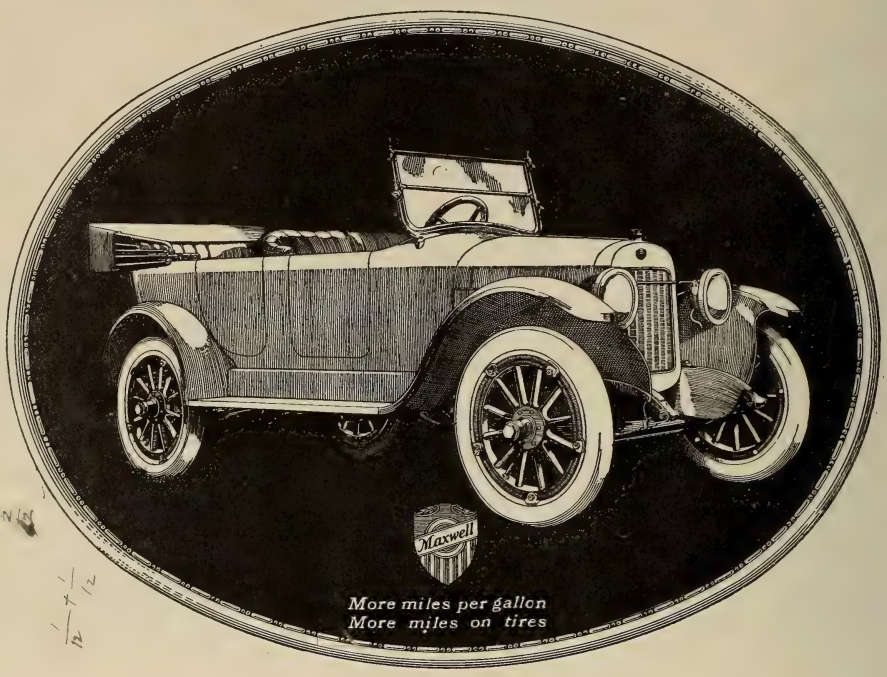
GENERAL MOTORS TRUCK COMPANY

One of the Units of the General Motors Corporation

PONTIAC, MICHIGAN, U. S. A.

Branches and Distributors in Principal Cities (537)





12,000 men, 8 great plants, and a capital of $36,000,000 are making your Maxwell

EIGHT gigantic plants and the use of a vast fortune in working capital are your guarantee in not only a good Maxwell, but a car that saves you $200 or more in the initial cost.

A good car at a good value creates its own market, and how rapidly the market for the Maxwell has multiplied is shown by this fact: One Maxwell car is being turned out every 1½ minutes of the working day. Yet there are thousands who will seek a Maxwell this year and suffer disappointment.

Probably enough cannot be built to satisfy much more than 60% of the demand. For it is a greater Maxwell; better looking, vastly improved from electric system to rear axle; and the price is still at the daringly low figure of $985, f. o. b. Detroit.

MAXWELL MOTOR COMPANY, Inc., DETROIT, MICH.
MAXWELL MOTOR CO. OF CANADA, Limited, WINDSOR. ONTARIO

Practice Putting on– WEED TIRE CHAINS in the Garage

It only takes a few moments to attach them when you know how. No jack required. Study the directions. Practice makes perfect. No danger of injury to tires.

THE careful driver regularly gives his car "the once over" every few days before he takes it out of the garage. He gives a turn or two to the grease cups—tests out the brakes, sees that there is a sufficient supply of oil, water and gasoline and that the batteries are in good condition, etc. By so doing he is assured, barring accidents, that he will have no trouble on the road. But—

HOW few there are that pay the slightest attention to the proper method of attaching Weed Tire Chains

Rain comes on, the road and pavements suddenly become slippery and treacherous—the car slips or skids—the Weed Chains, carried in nearly every tool box, are hauled out and a hundred to one the driver has only a hazy idea how to attach them. He fumbles around, gets hot under the collar and falsely accuses them of being a nuisance.

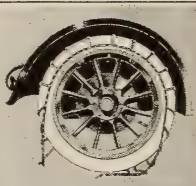
Women drivers are very numerous nowadays. They are driving out into the country over all sorts of roads—*they surely need protection against the dangerous skid.* How many of them know how to put on Weed Chains? Have you ever instructed your wife, your sister or your daughter?

The directions for attaching Weed Chains are simple yet most important. Avoid annoyances on the road—learn how easy it is to put them on correctly—*practice in the garage* and give the women instruction. It will amply repay you in security, satisfaction and comfort.

Printed instructions for attaching Weed Chains are packed in every bag—If you desire a copy write us and we will gladly mail it to you.

Weed Chains are also made to meet the demand for an efficient traction and anti-skid device for trucks equipped with single and dual solid tires or with the very large pneumatic tires. They are so constructed that they satisfactorily meet the requirements of heavy truck service in mud, sand or snow.

Observe these three fundamentals



Lay chains over wheel with hooks toward rear, and tuck the slack under front part of wheel.

Start car forward just enough to run over slack ends.

Hook chains as tightly as possible by hand.

Do Not Anchor

AMERICAN CHAIN COMPANY, INC.

BRIDGEPORT A·C·C CONNECTICUT

In Canada: Dominion Chain Company, Limited, Niagara Falls, Ontario

Largest Chain Manufacturers in the World

The Complete Chain Line—All Types, All Sizes, All Finishes—From Plumber's Safety Chain to Ship's Anchor Chain

General Sales Office: Grand Central Terminal, New York City

District Sales Offices:

Boston Chicago Philadelphia Pittsburg Portland, Ore. San Francisco

DODGE BROTHERS 4-DOOR SEDAN

From Sumatran Jungles to United States Tires

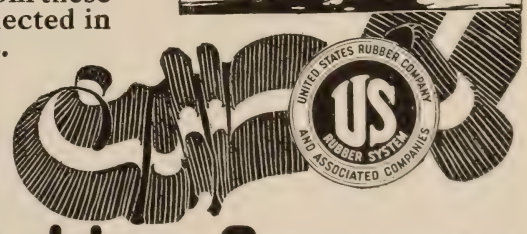
United States Rubber Company plantations in Sumatra already total 100,000 acres. They produce a substantial percentage of the company's crude rubber requirements.

Through its foresight in purchasing in 1910 these great tracts—now in constantly increasing production—the United States Rubber Company is able to realize substantial economies in price and vital advantages in the control of the quality of its raw material.

This company is the only rubber manufacturer growing its own rubber supply in any large quantity.

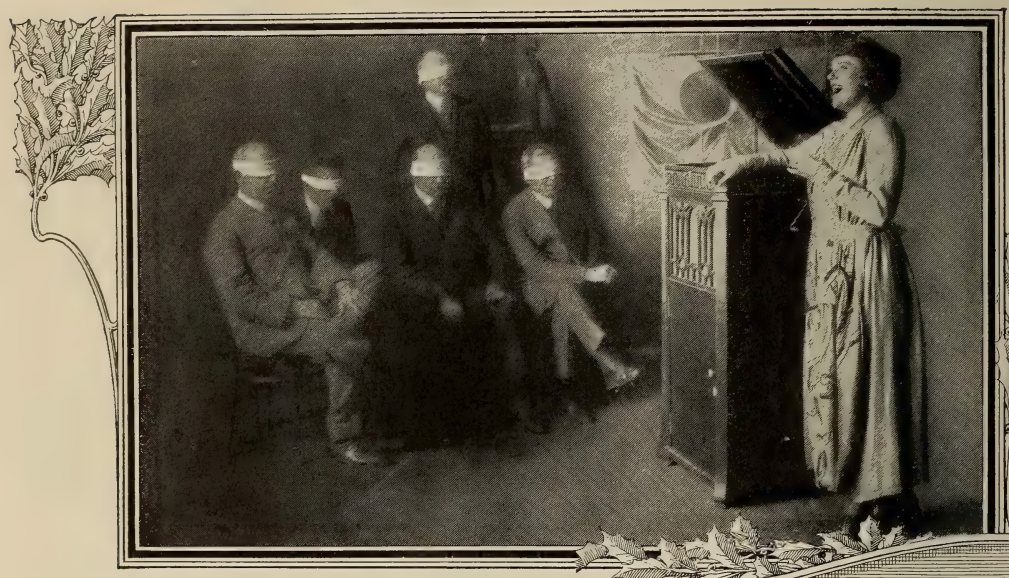
What was a Malaysian jungle in 1910 is today a flourishing province of civilization. It is operated by 20,000 workers. It has modern railroads, towns, schools, hospitals and churches.

The high quality of rubber received from these plantations—constantly enlarged—is reflected in the service given by United States Tires.



United States Tires are Good Tires

United States Rubber Company



Reproduced from actual photographs taken at
Edison Recording Studios, New York

The blindfolded jury hears Hempel sing "Io non sono piu l'Annetta," while she stands beside the New Edison.

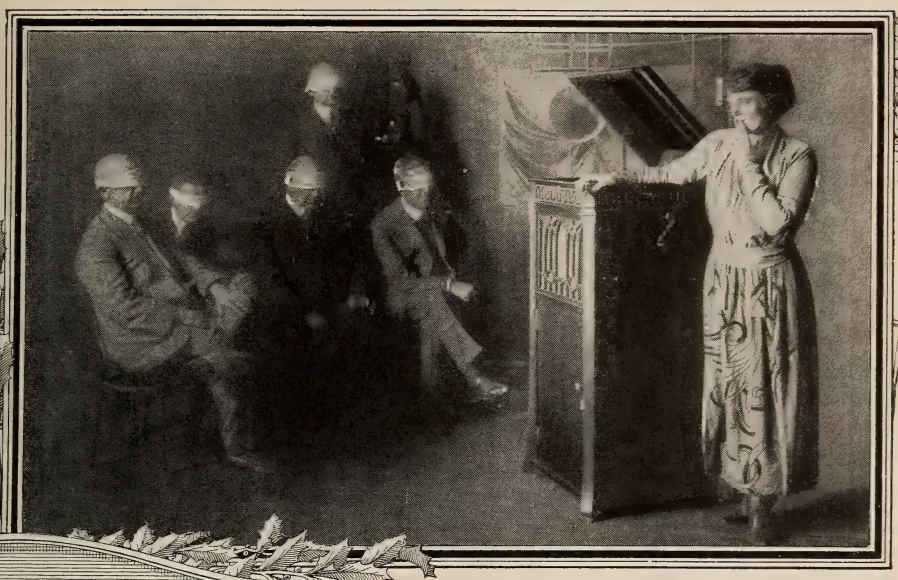
No dif

THE BLINDFOLD TEST is the most severe of all musical tests; shutting off a person's sight greatly increases his acuteness of hearing. Yet even the blindfold test has been successfully met by the New Edison.

Frieda Hempel, prima donna soprano of the Metropolitan Opera Company, New York, appeared before five of Thomas A. Edison's musical experts to perform the test. She stood beside the New Edison. The blindfolds were adjusted over the eyes of the five men. As shown in the first photograph, Hempel then started to sing. The selection was "Io non sono piu l'Annetta," from the opera "Crispino e la Comare." Suddenly Hempel stopped singing, but the song continued. The New Edison had taken up the song and was singing alone. The five experts, even though their hearing faculties were at highest concentration, were completely unaware that Hempel had ceased and that they were listening only to the New Edison's RE-CREATION of her voice.

Two million people have heard similar tone-tests, publicly given by forty different artists. Five hundred representative newspapers have publicly recorded the fact that no one has been able to distinguish the artist's living art from its RE-CREATION by the New Edison. The proof of this is founded upon scientific fact; it is piled mountain-high. The New Edison brings you all the living artist can bring, excepting his physical presence.

The NEW
"The Phonograph



ference!

Thirty seconds later! Hempel has ceased. The blindfolded jury is not aware that the New Edison is singing "Io non sono piu l'Annetta" alone.

FRIEDA HEMPEL is called "Hempel of the Voice Supreme." You might think this is because of her technique—so flawless, so superb! Or because of her notes, pure as the chiming of silver bells.

But Hempel is infinitely more than a vocalist. Hear her sing some song she loves, and suddenly you understand what it is that makes her great among the greatest in opera and concert. For you fall under the spell of a mysterious, lifting power—a power which transmutes every note into gold and every bar into angel-music. It is Hempel's sublime artist-soul. Soul is that electric something, that transcendent something, that eternal something, which makes music the mind's solace and inspiration. The soul of music is what Edison has caught and perpetuated in his RE-CREATIONS. That is why he considers the New Edison the greatest of his inventions. That is why the heart of the music-lover responds to a RE-CREATION by the New Edison, even as it responds to the art of the living artist.

Go hear the New Edison. Hear it with your eyes closed, for that is the best way to listen to music. You will feel that the artist himself is standing before you, alive!

Write to Thomas A. Edison, Inc., Orange, N. J., for the most interesting phonograph story of the year, "Edison and Music."

EDISON

with a Soul"

Magnificent Tone and Design

THE beauty of Sonora tone—rich, pure, expressive — is matched by the beautiful design lines. Observe the "bulge" curves of the cabinet. These, found only in the finest furniture, are produced by patented processes and are obtainable only in the famous

THE INSTRUMENT OF QUALITY

Sonora

CLEAR AS A BELL

The Highest Class Talking Machine in the World

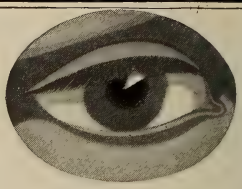
The Sonora is just what you need for entertainment. It plays ALL MAKES of disc records *perfectly* without extra attachments.

You will choose the Sonora for its wonderful tone which won highest score at the Panama Pacific Exposition and for its important features of construction, which include the extra-long-running, powerful, silent motor, convenient envelope filing system, all-wooden tone passage, effective automatic stop, motormeter, tone modifier, etc. A matchless line of upright and period styles is available at prices from $50 to $1000.

Today write for general catalog 37, or period catalog 37X, which will be sent free on request.

Sonora Phonograph Sales Company, Inc.

George E. Brightson, President
New York City: 279 Broadway
Toronto: Ryrie Building
DEALERS EVERYWHERE



EMERALITE

The Daylight Lamp

Ordinary artificial light has an excess of red rays which irritate the eyes. Daylight is the best working light because these harmful rays are subdued.

THE EMERALITE DAYLIGHT ATTACHMENT

changes harsh electric light into soft daylight that increases visibility and eliminates all glare and eyestrain.

Emeralite, always best, is now perfect for every reading need. Buying an Emeralite means doing your best for your eyes—they are worth it.

Sold by electrical and office supply dealers.
Write for interesting booklet.

H. G. McFADDIN & CO., 31 Warren Street, New York
Makers of lighting specialties since 1874

KIND TO THE EYES

SPEAK A FOREIGN LANGUAGE!

The War has created a great demand and unlimited opportunities for those who know **French, Spanish or Italian.** Another language doubles your commercial value.

Prepare now to better your position or increase your business. Brush up on the language you studied at school or college and make it of practical use. Equip yourself to read foreign books and papers.

You can learn quickly and easily, at home, during spare moments, by the

LANGUAGE PHONE METHOD

And Rosenthal's Method of Practical Linguistry

This is the natural way to learn. You hear the living voice of a native professor pronounce each word and phrase. He speaks as you desire—slowly or quickly. for minutes or hours at a time. It is a pleasant, fascinating study; no tedious rules or memorizing. It is not expensive—family and friends can use it. You simply practice during spare moments, and in a surprisingly short time you speak, read, write, and understand a new language. **Makes an Ideal Xmas Gift.**

Our records fit all talking machines. Write for free "Language Treatise," particulars of Trial Offer. Easy Payments.

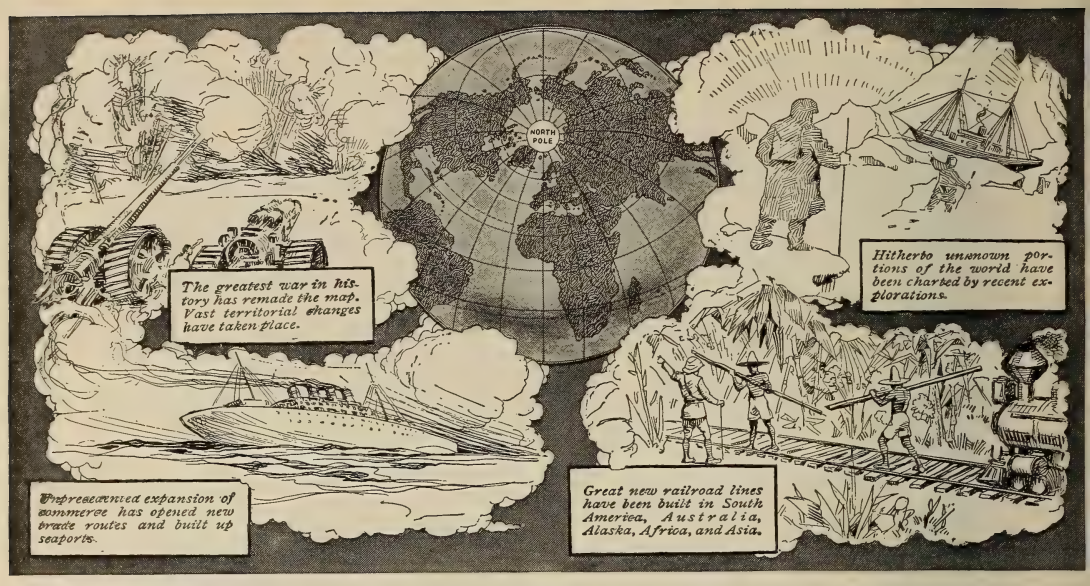
The Language Phone Method, 980 Putnam Bldg., 2 W. 45th St., N. Y.

STEINWAY

A PIANO that appeals to you like some fine old master-piece of painting or pottery—a piano of recognized artistic and mechanical excellence—a piano with responsive touch to express the subtlest nuances of tone—a piano that speaks to you like a sympathetic friend and endears itself the more as years glide by—this is the STEINWAY.

STEINWAY & SONS, Steinway Hall, 107-109 E. 14th Street, New York

Subway Express Stations at the Door


NORTH POLE
The greatest war in history has remade the map. Vast territorial changes have taken place.
Hitherto unknown portions of the world have been charted by recent explorations.
Unprecedented expansion of commerce has opened new trade routes and built up seaports.
Great new railroad lines have been built in South America, Australia, Alaska, Africa, and Asia.

A NEW World You Have Never Seen!

HAVE you seen the world as it looks today? The old world no longer exists—it has been completely made over—vast changes have taken place in every quarter of the globe. Today we are living in a NEW world!

The greatest war in history has turned the whole world upside down. It has wiped out our former maps—it has altered the face of continents, changed the status of territories everywhere—it has upset the entire world situation.

Important New Changes Everywhere

Besides the war, there have been other epoch-making forces at work revising the map of the world. Recent explorations, unprecedented expansion in commerce and industry, political upheavals—all have left their marks in every part of the globe.

How much do you know of this New World you are living in? Probably you have seen fragmentary maps in newspapers and magazines showing some one portion of the map that has been affected, but have you ever had the whole new world of today laid before your eyes so that you get a clear, comprehensive conception of just what changes have taken place?

Do you know what has been added to our geographical knowledge of the world by the recent explorations of Stefansson, Stuck, and McMillan in the Arctic, of Smuts in Africa, of Roosevelt and Rondo in Brazil?

Do you know how commerce has opened new routes of communication, built great new railroads in Alaska, Australia, Africa, Asia, South America?

Do you know how many new industrial cities have sprung up as a result of shipbuilding in the United States?

Do you know where the new kingdom of Hejaz and the new empire of Mongolia are located?

Do you know the new Europe that has come out of the war—with all the changes in boundaries, the new nations that have been born, the internationalized cities, the territories that are under plebiscites?

Do you know how the Peace Treaties have affected Africa, Asia, the islands of the Pacific?

Do you know what is included in the territory of over a million square miles which was taken from Germany and how it was disposed of by the Allies?

The New Strap on Italy's Boot

THERE is a new strap on Italy's boot as a result of the war. The northern boundary has been extended to strengthen the natural frontier—important readjustments have been made on the Dalmatian coast. Yet your present atlas does not show these vital changes. And this is only one example of the many vast alterations that have completely changed the map of every part of the world. You might better have no atlas at all than one that is full of misinformation. But this is the last time you need ever discard an out-of-date atlas, for now a *new kind* of atlas is ready for you—The NEW WORLD Loose-Leaf ATLAS—up-to-date *now* and *always*.

The Whole World Re-Mapped

Abreast of this great new world order comes a new kind of atlas—an atlas that keeps pace with the world! The NEW WORLD Loose-Leaf ATLAS is now ready—a superb new collection of maps that lays before you, in great detail, the whole new world of today.

But this is more than a *new* atlas—more than an *up-to-date* atlas—it is an atlas that can be *kept* up-to-date—that shows changes in the map whenever and wherever they occur, for with this atlas is furnished up-to-date *Map Service* that keeps abreast of current events.

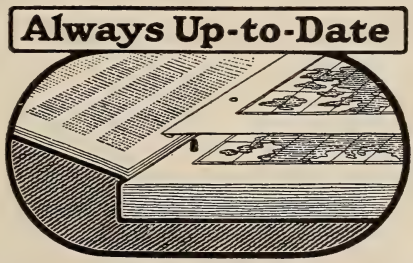
A Few of the Many Features

Three hundred and fifty pages of maps and indexes. All maps are printed in full color on heavy, supercalendared paper, size of page 13¼ by 19½ inches. Rich, durable cover with special Loose-Leaf Binder.

New maps of all the nations, territories, and islands of the world revised to date. Detail maps of important cities and harbors. Maps of the Hemispheres and the World. Exploration maps of North and South Poles. Language map of Europe. Large-scale map of the Western Front. Sixteen pages of Historical maps showing the territorial development of the nations of the world from ancient times. A comprehensive collection of special maps, including Physical, Vegetation, Climate, Population, Economic, and Agricultural maps. Large-scale maps of the United States. United States Railroad maps and key map showing standard time zones, parcel-post units. U. S. Shipbuilding map. Oil and gas map. Over one hundred pages of new State maps, showing each State on large scale and in great detail. A complete index of the world, the index of the United States including the name of every incorporated place, post office, and town of over one hundred inhabitants, with latest population figures.

A Wonderful New Kind of Atlas

If the world never changed, no atlas would ever grow out-of-date. But with the rapid march of current events even new atlases must soon become obsolete. The NEW WORLD Loose-Leaf Atlas is the only atlas that keeps pace with the world, because we made it



Loose-Leaf—To Insure Permanence

The New World Loose-Leaf Atlas represents a distinct advance in the science of atlas production. Never before has an atlas been made that could be kept up-to-date. Never before has the loose-leaf principle been applied to an atlas.

It is the only method by which atlases can be kept permanently abreast of developments, of changes political and economic, of advances in commerce, of new discoveries and explorations.

The NEW WORLD Loose Leaf ATLAS

World to Undergo Many Changes

Even now, after all the changes that have taken place in every part of the globe, an atlas cannot be kept up-to-date unless provision is made for future changes.

Plebiscites are apt to wipe out many boundary lines. Self-determination may bring about drastic changes. Perhaps even an entire continent may be divorced from its present rule. Who can foretell all that will take place in the next year or so?

Map Service Free for Two Years

For every change that is made, a new map will be furnished, and for two years we will furnish these maps without charge.

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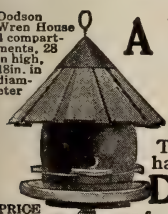

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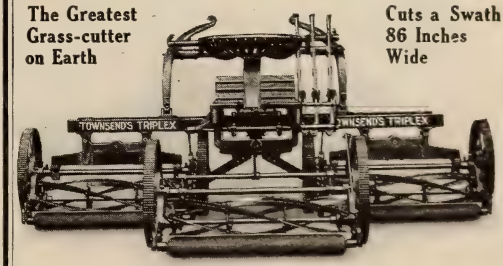

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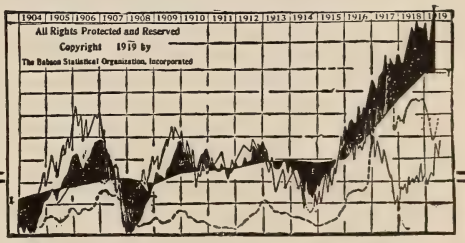
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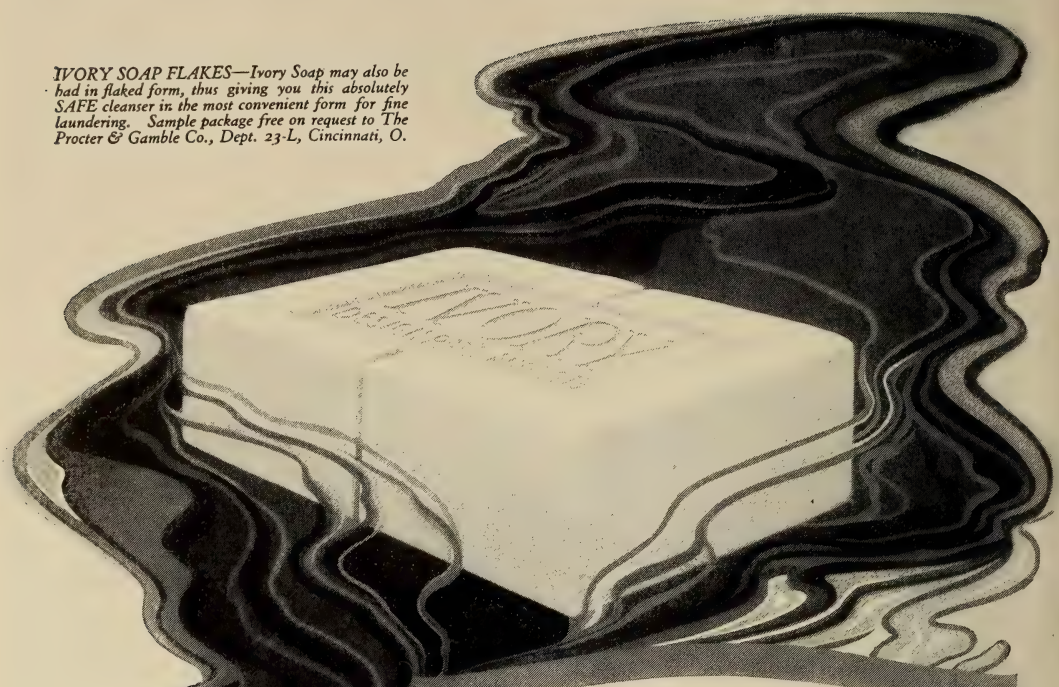

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VOL. XXXVI, No. 5 WASHINGTON NOVEMBER, 1919

THE NATIONAL GEOGRAPHIC MAGAZINE

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THE RISE OF THE NEW ARAB NATION

By Frederick Simpich

Author of "Where Adam and Eve Lived," "Mystic Nedjef, the Shia Mecca," "A Mexican Land of Canaan," etc.

AMONG all the small, new States to emerge from the melting pot of war, none is more interesting nor a more significant factor in world politics than the new nation of Arabia.

Twelve per cent of all the people in the world take their rules of conduct and laws of life from Mecca, and take a keen, personal interest in all that happens in Arabia, and *to* Arabia. One man in every eight, throughout the whole world, hopes some day to visit Mecca, to paint his beard red, and to bear the honored Islam title of Haji the rest of his life.

So, empty and obscure though Arabia may be, and scant as our first-hand knowledge of Mecca has been, the rise of this new nation brings Christian and Moslem into new, close contact, affecting the religious and political destinies of 223,000,000 people. And remote, little-known Arabia, ancient and mysterious, is the stage on which this great political drama of the Middle East is being played.

The first act was the break-up of the Ottoman Empire; this is now a *fait accompli*. France, we hear, will watch over Syria, Britain over Mesopotamia and Arabia, etc., leaving only Anatolia to Turkey.

MOHAMMEDANS AID ALLENBY'S CRUSADE IN PALESTINE

Act II in the drama was the famous manifesto from the Agha Khan, the great Moslem leader, declaring that Turkey had lost her high position, religiously speaking, when she lent herself as the tool of Germany. Proof, amazing proof of this was revealed when Arab troops joined Allenby's column in the march on Jerusalem and Moslem fighters of India "threw in" with the British against German and Turk alike. Shades of Peter the Hermit and Lion-Hearted Richard! Here is a crusade they never dreamt of!

Act III: Scene, the palace of the Grand Shereef, in the forbidden city of Mecca, "The Soul of Islam," where men are killed who say that Christ was the Son of God. The Grand Shereef, surrounded by slaves and eunuchs, pens a telegram to leaders of Christian powers; he asks that Arabia be admitted to the family of nations! In one fell blow, apparently, Christian warfare indirectly brought about the fall of the citadels of bigotry and fanatic isolation, against which Christian missionaries had vainly hammered for generations!

Even previous to 1914, however, a restless group of Arab students sojourning in Paris were agitating for Arabian independence. One of them, Najob Azoura, wrote a book called "Le Reveil de la Nation Arabe," pleading for "a united Arabia, independent and progressive, a force in civilization, a cradle of the renaissance of Arabian art, literature, and science." This idea was warmly supported by the more advanced Arabs living in Egypt and Syria, and the world

Photograph from Frederick Simpich

THE NARROW BAZAAR STREETS OF MASKAT ARE MORE LIKE TUNNELS THAN THOROUGHFARES

Candy and dates are the main articles of sale, although various foreign goods of a cheap character and flashy appearance are becoming more common. The Oriental bazaar would be popular with the average Occidental more for the coolness of its shade than for its shopping possibilities.

war opened their path to success. It also cost the lives of many Arab leaders in Syria, who were apprehended by the Turks and shot.

HIDE-AND-SEEK GOVERNMENT IN ARABIA

The Sultan's long control over Arabia was never more than nominal, especially in the interior. Barring parts of Hejaz, Turkish authority was never actually and fully recognized and respected by Arabs anywhere. In many parts of Arabia official Turkish feet never trod; outside nations, by international courtesy, regarded these regions as Turkish territory merely because the map so showed them; but the local Arabs ruled themselves—and laughed at Turkish claims.

Even as late as 1910, when the Sultan sent word to the Sheik of the Beni Lam tribes in Mesopotamia (not even a part of Arabia proper), inviting him to come to Stamboul for a conference, the Sheik replied, in substance, "If you want to see me, you know where I live!"

While residing in Bagdad, I used to see Turkish light artillery go out to blow up the mud towns of river Arabs, who, spurning Turkish authority, had refused to pay their taxes. Sometimes the Arabs would drive the Turks back; often the Turks would seize many of the tribes' camels for back taxes. Later, perhaps, the Arabs would steal the camels back again.

Thus this hide-and-seek war went on; it went on from the halcyon days of Murad the Fourth, and civilization grew weary of the spectacle. It held back the development of trade in the Middle East; trade caravans could not travel safely, either from Syria to Mesopotamia, down into Arabia, or even from Bagdad to the Persian frontier. Once the German consul at Bagdad, going to Aleppo by carriage, was robbed and stripped, escaping back to Bagdad clad only in his shoes.

Christian nations, long tired of Turkey's experiments, have now officially declared themselves, and the dawn of a new era in the Middle East is breaking. Listen to what Clemenceau told the Sultan's Grand Vizier when he recently headed a committee of Turks who called on the Council of Ten (at the Peace Conference) to plead for the *status quo ante bellum* of the Ottoman Empire:

"The Council is anxious not to enter into unnecessary controversy, and to avoid inflicting needless pain on Your Excellency. . . . It wishes well to the Turkish people, and admires their excellent qualities. But it cannot admit that among those qualities are to be counted capacity to rule over alien races. The experiment has been tried too long and too often for there to be the least doubt as to the result. . . .

"There is no case to be found . . . where the withdrawal of Turkish rule has not been followed by a growth in material prosperity and a rise in the level of culture. Neither among the Christians of Europe nor among the Moslems of Syria, Arabia, and Africa has the Turk done other than destroy where he has conquered." . . .

ENTER BRITAIN—EXIT TURK

So the passing of the Turk and the rise of the new Arab nation is full of far-reaching possibilities. The Grand Shereef's famous telegram spelt the end of Mecca's isolation, obscurity, and fanaticism. Ministers and consuls, missionaries and merchants may now reside, explore, and trade in this long-forbidden country. Light will fall where darkness lurked, and this vast geographic unit of the old Ottoman Empire will no longer be merely a blank space on the world's map.

Arab tribal wars will end. Bedouin clans, like the Jebbel Shamars and the Anaeza, nomad outlaws since the wild days of Ghengiz Khan and the invading Timur, will now have to be good. British supervision will protect the trading caravans, and pious pilgrims from Turkestan, Persia, India, Egypt, and Syria may go to Mecca in peace and safety.

Whether the new religious head of Islam actually resides in Mecca or in Cairo will not affect the predominance of Mecca and Medina, so famous in Mohammedan history. For the British will be there; and the Moslem faith has always been as much of a political as a religious force in the Middle East. And for decades Britain's influence among the Arab sheiks about Aden, Maskat (Mus-

DISEMBARKING A CAMEL FROM A RED-SEA BARGE AT AN ARABIAN PORT

The ludicrously gawky camel is the most useful beast in the whole of Arabia, and even the prancing stallion has to make way for the long file of patient, plodding desert carriers, each chewing a reflective cud while accomplishing the work of the day.

cat), and Bahrein has been enormous; in fact, so strong is the British impress that a sheik once asked me if America was not a part of London! And whether I came to Arabia from America via the Egyptian railway system!

THE CITY OF EVE'S GIANT TOMB

The port of Jidda, Red Sea gateway to hidden Mecca, sprawls over hot, treeless hills—whitewashed, sinister, and forbidding, as if loath to give up her long guardianship of Arabia's secrets and isolation.

A cable's length offshore our pilgrim ship swung at anchor blistering and silent, for cholera had come among the white-robed, praying pilgrims, and the *Tigris* was quarantined against this dread disease. For days we rolled on the oily swells of the Red Sea, waiting for the hateful yellow flag to be pulled down.

Idling at the foul, sticky rail, I gazed down into the clear, deep waters, seeking in whimsical fancy to make out rusty old chariot wheels or the white bones of men and horses, relics of Pharaoh's hosts engulfed so long ago.

Here in Jidda the Arabs will show you a long stone tomb, shaped like an airship's hangar; here, they claim, Eve is buried. Adam and Eve were big people, the Arabs say; Eve was so tall she could hold a grown lion in her lap, and stroke it as we stroke a kitten. When you note the size of her tomb, you can readily believe she was rather a stalwart dame.

THE WORLD'S GREATEST TOURIST TOWN

Forty-five miles east of Jidda, poured into the canyons and valleys of a mass of rough hills, lies Mecca itself, the famous holy city of Islam. In spite of its vast political and religious importance, the town is mean and small, with less than 100,000 Mohammedan souls. It has al-

most no trade, and it manufactures nothing. But it has the largest tourist traffic of any city on earth, and, like other tourist towns, it lives on the traveler.

The Meccans peddle food and clothing to the pilgrims, rent them houses, act as their guides, make contracts for transporting pilgrims by land and sea, and in a hundred other ways they craftily exploit (to their own personal benefit) the vast benefactions that flow to the holy city. Even temporary marriages are arranged for the visiting pilgrims.

And the country Arabs, or Bedouins, likewise thrive on the bounty of the pilgrim, either by outright robbery and pillage of the caravans or by imposing taxes, for "protection," on those who pass through their tribal regions.

But even among the Bedouins the Meccans have a bad reputation. They say the worst birth certificate an Arab can have is the *Tashrift,* three parallel gashes, distinguishing the bearer as one born in Mecca.

Ever since Mohammed purged the Kaaba of early Arab idols and made it the chief sanctuary of Islam, adapting this heathen temple to Moslem worship by the fiction that Gabriel threw the black stone down from heaven to Abraham, "the unspeakable vices of Mecca have been a scandal to all Islam and a constant source of wonder to pious pilgrims."

THE AMERICAN IDEA OF ARABS

All we know of Mecca, as yet, has come mostly from Moslem writers and photographers, and from the meager reports of the few Christians like Burton, Heronje, and others, who braved the dangers of discovery and succeeded in visiting the hidden city. But, with the rise of the new nation, Mecca and Medina will go on the revised map as places to which Christians may travel, if they wish, either as merchants or tourists.

It is not likely, judging from its location, climate, and surroundings, that many non-Moslem globe trotters will get the Mecca habit; but its days of complete isolation probably are gone forever.

In America our knowledge of Arabs is mostly limited to a glimpse of drowsy, turbaned persons in worn, shabby *ziboons* and red sandals, leading a few blasé, moth-eaten camels in a circus parade, or to occasional troupes of acrobats doing dizzy pyramids or wild Arab "bat dances" and whirling dervish tricks on the vaudeville stage.

THE ARAB A DESERT ADONIS

The modern Arab has so lost his place in the world that we forget his race once ruled from the Indus to the Atlantic, and that his schools of philosophy, medicine, and other sciences were world famous.

In appearance the Arab is singularly handsome, tall and lithe, with beautifully molded limbs, dark-eyed and dark-haired. Dwarfs, hunchbacks, and misshapen persons are seldom seen in Arabia. Hereditary disease, too, is almost unknown, and the race is generally strong and healthy. His personal habits are simple and clean, the careers of those born in Mecca being apparently an exception.

Few races of humanity excel the Arabs, either physically or morally. And mentally they are perhaps second to none, especially in alertness of perception, deductive powers, and feats of memory. Like some other people of the East, however, they seem to lack the powers of organized effort and combined action, a defect which may have tended to keep them so long a subject race.

The origin of the race is a matter of conjecture, but the Arabs were a unified political body with a king of their own long, long before the Christian era. Just now there are perhaps 10,000,000 Arabs, and for convenience of classification they are usually separated into two divisions—"Al Bedoo," or "The Dwellers in the Open Land" (commonly called Bedouins), and "Al Hadr," or "Dwellers in Fixed Localities."

The Bedouins, roaming with their herds all over Arabia and even up into Mesopotamia and Syria, are better known to American missionaries, officials, and travelers than the Hadr class. They are nomads from necessity and not from choice, and, as the country comes under better rule, roads, trade, and irrigation will undoubtedly reduce the number of Arabs forced to lead this wandering life.

Most of present-day Arabia (that part which is not wholly a desert) is so dry as

A SKETCH MAP OF ARABIA, SHOWING THE GEOGRAPHICAL RELATION OF THE NEW KINGDOM OF HEJAZ TO SYRIA, MESOPOTAMIA, AND ARMENIA

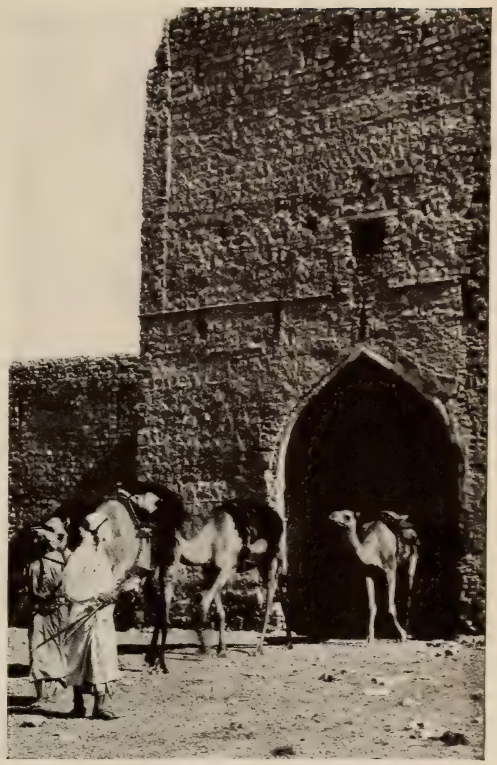
Work of construction on the two most famous railways in the Near East—the Damascus to Mecca Pilgrims' line and the Berlin to Bagdad steel highway—was interrupted by the World War. Since the armistice operations have been resumed on the missing link of the latter, between Nisibin and Samarra, and the Pilgrims' line is now being pushed southward from Medina (see also "The Land of the Stalking Death," page 393, and "Syria, the Land Link of History's Chain," page 437).

to be unsuited for anything except grazing; and moisture is so scant that even many of the grazing areas fail from time to time, and the Arabs have to move their herds from place to place, or all would perish. It is this constant quest for grass and water which so often causes friction and fighting among the roving tribes.

Then, too, living this free, open life, so remote from law courts and police, through so many generations, has made the Arabs a bold, defiant, headstrong people, not easily ruled and impatient of restraint. They are familiar with only one quick way to settle a dispute—to fight.

Although Bedouin and bandit are almost synonymous terms in some parts of Arabia, this is hardly fair to the Bedouins when we consider the way they have to live. When they hold up a Mecca caravan, for example, and exact a sum in cash for "protection," they look on this merely as their rightful share of taxes, habitually collected and kept by border officials. A reform of these desert manners and methods will most probably ensue as a result of the British mandate over Arabia.

Although nominally a Mohammedan, the average Bedouin is said to worry but little about the Koran's rules or whether his mode of living would please the Prophet. The wilder tribes even worship the sun, trees, rocks, etc., or else have no religion at all, it is said. Marriage is early and easy and divorce simple and frequent. (For a description of Arab life and habits see the NATIONAL GEOGRAPHIC MAGAZINE for December, 1914.)



Photograph from Frederick Simpich

AN ARAB GATEWAY TO OLD MASKAT

In the sixteenth century Albuquerque captured this port and capital of Oman for the Portuguese, who held it for a century and a half. The woven stuffs of the city are famous in the Near East. The pointed arch, common in Arab structures, is an emblem of the Mohammedan faith and is considered stronger than the semicircular arch, whose keystone has a tendency to drop. In India this architectural feature is called "the arch that never sleeps."

THE ARISTOCRACY OF ARABIA

About 80 per cent of all Arabs live in towns, villages, or other fixed places of abode and belong to the "Hadr" class. In this group is found the aristocracy of Arabia. Here are old, reputable families, with records of births, deaths and marriages, deeds and honors, running back through generations.

Perhaps the most noted family in modern Arabia is the house of Koreysh, tracing its connections back to the Prophet. The men of this family bear the title of Shereef or Seyd; and it was the Shereef of Mecca who led Arabia's break for statehood.

Education, however, as we regard it in America, is almost unknown among Arabians. The few with culture are a class to themselves. Most learning is confined to the classics of religious and secular literature; the Koran is learned by rote. In the smaller towns there are no schools at all.

Yet it was Arab learning and skill, in the long ago, which started the civilized world on the way to its present high efficiency. Under the Caliphs, schools of therapeutics were set up at Bagdad, and botany was studied as a branch of medicine. As one writer says, "The principal

Photograph from Frederick Simpich

THE TOWN OF MASKAT FROM THE HARBOR ENTRANCE

The muzzle-loading cannon on the rocky hills were placed there by the Portuguese centuries ago, but they are still used by the Sultan for firing official salutes. The value of Maskat as a naval base lies in the fact that it commands the entrance to the Persian Gulf. Dates, mother-of-pearl, dry fish, and salt are the main items of Oman's trade, most of which passes through this port.

Photograph courtesy E. Ratisbonne

AN OASIS SCENE IN THE NEW ARAB KINGDOM OF HEJAZ

The Arab's vision of paradise inevitably includes limpid streams and splashing fountains, for his earthly home is largely parched lands, where water is always at a premium. A tiny cascade of water in the coffee-house is music in his ears. The oasis is the resting place for man and beast—the democratic club of nomad life.

mercurial and arsenical preparations of the materia medica, the sulphates of several metals, the properties of acids and alkalis, and the distillation of alcohol were, with their practical application, known to Er-Razi and Geber, professors of Bagdad. In fact, the numerous terms borrowed from the Arabic language—alcohol, alkali, alembic, and others—with the signs of drugs and the like still in use among modern apothecaries, show how deeply science is indebted to Arab research."

All of which leads the Christian world to believe that the Arab people, as a nation, can "come back."

SEVEN-YEAR SLAVES AND INTERMARRIAGE

On one occasion, while hunting wild guineas in the licorice brush along the lower Euphrates, our party put up for the night at an Arab village. To make friendly conversation (through our interpreter), I expressed admiration of the splendid physique of the big black who served us. He really was a magnificent man, straight and muscular, and dignified as a Chinese mandarin, as he marched proudly in, carrying on his head a giant copper tray holding a sheep, roasted whole.

Pleased that I should admire his slave, and with characteristic Arab politeness, the old sheik, our host, promptly made me a present of the man! I felt some embarrassment in refusing, but explained that in America slavery had been abolished. The sheik, however, kept repeating, "But you are not in America now!"

Slave traffic along the Arab coast is illegal under the terms of certain conventions, but slavery, nevertheless, is said still to exist to a rather considerable extent. A few years ago members of the American Arabian Mission at Bahrein rescued a whole boatload of black boys who had been smuggled up from Africa in a "blackbird" *dhow* for sale along the Oman coast. In the interior towns slaves are used mostly as personal servants, body guards, and hostlers.

By an old law in Arabia, a slave is freed after seven years of service, provided he has embraced the Moslem religion, and it is said that most of the slaves do so. There is no prejudice against marriage with blacks in Arabia, especially after they are freed. This intermarriage has scattered a black population all over Arabia; in ports like Maskat and Aden mulattoes and mixed breeds are so common that the pure Arab strain is almost a rarity.

AMAZON TONGUES AS WEAPONS OF WAR

There is no better fighting man anywhere than the Arab. The Turks will tell you this! History says that in the seventh century the Arabs raised an army, swooped out, and whipped half the then civilized world.

Today Arabia could readily raise and maintain an army of 400,000. And no doubt the British will recruit and equip many regiments of native troops for use as constabulary along the caravan routes and in the big cities, after the manner of their colonial troops elsewhere.

The women fight, too, in emergency, and Arab myths and legends are full of tales of heroic women. History tells the story of Ayesha, a wife of the Prophet, who led a charge at the "Battle of the Camel," in 656 A. D. To this day it is an Arab custom to have a woman along in battle—usually mounted on a black camel—to sing songs of cheer to the men and to insult the enemy.

And the Arab shares the universal human trait of wanting to be on the winning side. The Beni Lam tribe in Mesopotamia quit their Turkish allies and went over to the British as soon as the Turks began to lose.

THE PHYSICAL GEOGRAPHY OF ARABIA

In physical character, flora, and fauna, Arabia is more like Africa than Asia. In shape, it is almost a triangle, and it runs from northwest to southeast, between 30° and 12° 45′ north latitude and between 32° 30′ and 60° east longitude. It is bounded on the east, south, and west by the Persian Gulf, the Arabian Sea, and the Red Sea respectively; on the north it joins Syria. As Josephus of old wrote, "Arabia is a country that joins on Judea." And Roman geographers drew a map of Arabia that included Mesopotamia and the Syrian desert back of Palestine.

The length of the peninsula from the head of the Gulf of Akabah to the Straits

A NEGRO FAMILY OUTSIDE THE WALLS OF JIDDA

Negroes are treated with full respect by the Arabs and intermarriage is not unusual. The Bisharin of upper Egypt and the Wahabees of the Nejd region are Hamitic peoples, so closely intermarried with African slaves that they are often mistaken for Negroes.

of Bab-el-Mandeb, near Aden, is about 1,300 miles; its greatest breadth, in latitude 23° north, from the Red Sea coast on the west to Ras-al-Hadd on the east, is about 1,500 miles.

As one sails along the Red Sea coast of Arabia, with the low—2,000 feet high—dry and barren mountains lying just back of sandy, empty strips of country, he is reminded of the Pacific side of Lower California above Cape San Lucas. Many small islands, hot and dry and uninhabited except for half-wild bands of tramp fishermen, dot the map along this coast. One of these, called Perim, near the mouth of Bab-el-Mandeb Straits, is occupied by a British garrison.

The southeastern coast, similarly empty and marked by sharp, jagged rocks thrust up from glistening sand beds, is broken by several good harbors, like that at Aden. This latter port is a British possession, not unlike Gibraltar. It is heavily fortified and is the entrepôt of commerce between India and Europe.

THE CRUISING GROUND OF SINBAD THE SAILOR

The Persian Gulf coast country is somewhat more cheerful, cultivated here and there, and sloping down to salt water from the high, slightly forested Jebel Akdar or Green Mountains.

Famous old Maskat, once the haunt of Sinbad the Sailor and later the stronghold of the Portuguese buccaneers, clings to the hot rocks inside Maskat harbor, and is the romantic capital of old Oman, an independent principality with a sultan all its own.

Oman has been practically under British protection for many years, and, though an integral part of the Arabian peninsula, can hardly be called a part of Arabia. Whether this region will be in-

Photograph from Frederick Simpich

BEAUTY BEHIND "BLINKERS"

This peculiar head-dress worn by the Arab women of Oman looks like a piece of football gear.

cluded in the boundaries of the new Arab nation is as yet undetermined.

Along the Red Sea coast lie three provinces, the most important in Arabia. Yemen, the most southerly and most populous, has many arable valleys, producing coffee, figs, spices, hides, and dates. It has two port cities, Mocha and Hodeida. Aseer province lies north of Yemen, and north of Aseer and extending to the Suez Canal stretches the province of Hejaz, wherein lie the famous Moslem cities of Mecca and Medina.

The ancients, for convenience, or from lack of geographic knowledge, divided Arabia into three parts—the Stony, the Desert, and the Happy. Our knowledge of its map shows most of its high interior plateau occupied (except for Nejd province) by four great deserts, the Syrian, the Nefud, the Ahkaf, and the Dehna.

The Mahrah and Hadramaut provinces, stretching for hundreds of miles above Aden, are unmapped and practically unknown.

AN UNKNOWN OASIS

Nejd, the great interior province, is declared by Arabs to be the birthplace of their most cherished institutions and traditions. Nejd is isolated from the outside world by a surrounding desert girdle. To reach this hidden paradise and the unknown city of Hail the traveler must undergo the hardships and perils of a trip across these seas of sand. This same desert belt, touched at its outer rim in the long ago by Greek and Roman explorers, was mistakenly believed by them to be the edge of a wilderness that filled all of inner Arabia.

Niebuhr, the eighteenth century traveler, seems to have known the Arabian peninsula better than any other white explorer. The narratives of Palgrave, Burton, and Lady Ann Blunt, however, are far more entertaining.

Hasa province, at the head of the Persian Gulf, and Koweit, its busy port, from which many cargoes of dates, sponges, and a wealth of pearls are shipped, is no doubt destined to see great commercial development in connection with Great Britain's activities in Mesopotamia.

THE KAISER'S FIRST TERMINUS

The Germans had selected Koweit as the salt-water terminus of their famous Bagdad railway, but the British, by a clever coup a decade ago, made a treaty with the Sheik of Koweit and blocked the Kaiser's plan for a railway port on the Persian Gulf. And now a British light railway, starting at Bassora, on the Shat-el-Arab, runs up the Tigris plain past the tomb of Ezra, past the Arch of Ctesiphon, and into the ancient city of the Caliphs. From Berlin to Bassora by rail will soon be an easy journey via Aleppo, Mosul, and Bagdad.

A confusion of plant life is spread over Arabia's many rich *wadis* (valleys) affording much "unfinished business" for eager botanists. Besides the friendly palm, such trees as the sycamore, almond, chestnut, pomegranate, the "gum Ara-

bic," the acacias, and a long list of bushes and shrubs are scattered up and down the peninsula. Then there is the "samh" or oatmeal plant of the Arabs; from its small grain they make a porridge called samh, the national breakfast food of Arabia.

THE KORAN MADE ARABIA "DRY"

But, with the exception of dates, Arabia produces few crops of any importance. Good coffee, in limited quantities, comes from Yemen. Millet, barley, and wheat are all grown, but owing to drouth the crop is small and restricted to limited areas. Wherever water and soil permit, such products as rice, melons, gourds, cucumbers, cabbage, garlic, and onions are raised.

Grapes are grown throughout the peninsula; but the Koran made Arabia "dry" long ago, and no wine is manufactured. Unorthodox Bedouins and many of the blithe and gay town Arabs, however, find an amazing "kick" in *arrak*, a drink made from date juice.

The best dates come from the interior province of Nejd, the Arabs say, and some of the fruit there attains a length of two inches. Arabs declare that every *wadi* running into the great Nejd plateau is a waving sea of green date palms. Dates are eaten fresh or stewed with butter and are the chief article of diet.

The Indian fig, the banana, the papaya (imported from India), the coconut, and the betel nut are also grown in Nejd.

Agriculture is crude, like that of our old American Indians. A crooked stick scratches the ground, and seed is broadcasted by hand. Such arts as fertilizing, rotating crops, pruning, and cultivating receive scant consideration. Hand sickles are used for reaping; oxen tread out the grain, and it is winnowed by being thrown into the breeze. In brief, Arabia's agriculture is almost nil—barely sufficient to furnish a meager supply of food to the sparse population.

SOLOMON'S LETTERS DISPATCHED TO SHEBA BY AËRIAL MAIL

When King Solomon wrote notes to the Queen of Sheba, they were carried to her by the "hoopoe" bird, a sort of pigeon, says an Arab tale. Many other

Photograph from Frederick Simpich

HIS HIGHNESS FEYSIL BIN TURKI, FORMER SULTAN OF OMAN AND FATHER OF THE PRESENT SULTAN, SEYYID TAIMUR BIN FEYSIL

Once Oman was a powerful State with possessions in Africa. It reached the zenith of its power in the middle of the last century, but with the death of its most famous ruler, Said ibn Sultan, its decline began. Its present integrity is guaranteed by Great Britain and France. The population is estimated as 500,000, mostly Arab, but with a strong infusion of negro blood.

birds are to be found in Arabia, but the falcon seems most popular with the people, who use it for hunting. I saw one at Bagdad that had more than a hundred gazelles to its credit, according to the boast of its owner, who had an amazingly big pile of horns to substantiate his story.

Then there are rock and wood pigeons, and in the cultivated areas many larks, sparrows, cranes, and finches. Around Koweit wild guineas abound. In Yemen peacocks and parrots are plentiful, with quail in the mountain districts.

A peculiarly drab-looking desert grouse called "kata" lives on the edges of desert wastes. I observed a flock one day. After a short flight they alighted on the sand and sprawled out to hide, their color blending with the sand so perfectly as to render them unnoticeable to a man standing a few yards away.

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MILKING A HERD OF GOATS AT A BEDOUIN CAMP IN THE HEJAZ

Goat's milk and goat's-milk cheese form a large part of the Bedouin diet.

Eagles, vultures, bustards, and various hawks, to say nothing of the awkward old ostrich, are common enough.

Except for the lizard family, reptiles are rare, and no poisonous snakes, save the "afai" and the "rukta," both of the viper family, are found in all Arabia. There are scorpions, however, and centipedes; and in old houses on the west coast a very dangerous spider ("Abu Hanekin") makes life miserable for the Arab tired business man.

HORSE AND CAMEL—LIGHT-FOOT FRIEND AND FLEA-BITTEN SLAVE

The horse is perhaps indigenous to Arabia. Certainly the finest horses on earth live here; not the largest nor necessarily the swiftest, but the handsomest. The best Arab horse is seldom over 15 hands high, and there are probably many favorites in Europe and America that can do a mile faster than the best horse in Nejd—on a modern track under racing conditions. But for docility and endurance, for symmetry of limb and body, for sheer animal beauty and perfection of form, the "Nedjee horse" has no rival.

Here in Nejd live the aristocrats among horses; their family histories can be traced back to the fifth century. These animals are seldom or never exported. A few stallions have been given away as presents to monarchs or distinguished foreigners, but the mares are kept at home.

Nothing in Arabia is more fascinating than the story of the horse; and long ago a British consul at Bagdad (Colonel Tweedie) wrote a book, "The Arab Horse," with wonderful plates showing prize animals of the country. Oddly enough, the Arab seldom shoes his horse. Sometimes, however, he oils an animal's hoofs to prevent splitting in the hot, dry sands. Horse "wrangling" or breaking is unknown; colts, raised close to tents or homes of owners, are tame from infancy and are ridden early.

Dates and barley are fed to horses, and grass selected with much care. Once in a while a little dried meat is fed, and, intentionally, scant water is given. In cool weather a Nejd horse will travel 48 hours without drinking.

Training a horse to different gaits is an Arab gift. No bits are used, but instead a fancy rope halter, and at that the animal is guided mostly by pressure of the knees. But Arabs do not kiss their horses, nor cry over them, nor bring them into the tents to sleep on cold nights, as we sometimes read in superheated desert fiction. Frequently they fatten a weak colt on camel's milk, and the colt will whinny and cry when it sees an Arab take the milk bowl and start toward the cow camel at feeding time.

The horse is more popular and sells for more money than the ugly, sullen, and indifferent camel. But this latter drab, flea-bitten brute is pre-eminently the most useful of all animals in the East. The Arabs work it 15 hours a day, shear it in the spring, milk it, then kill it, and eat it when it is old. All over Arabia the camel is the chief commodity of trade, the favorite investment, the unit of exchange, and the common standard of property.

WHERE COWS EAT FISH

Goats and sheep are plentiful, too, and from Aden thousands of skins are shipped to this country. In Yemen the fat-tailed piebald sheep are numerous. The skins of unborn lambs are much prized and are exported to France. Cattle with humps on their backs, like the "Brahminee" bulls of India, are found in Oman and Yemen, and a stouter, humpless variety thrives in the northern provinces. There are comparatively few cattle, however, owing to lack of forage, as cattle will not eat the "camel thorn," on which camels live indefinitely. Around Maskat, in drouth times, dried fish are sometimes fed to cows.

In the Hasa province the rich ride the ass. The best of these animals are pure white, as much as 13 hands high, and often sell for $500 or more. In the rougher regions of Arabia the ass often runs wild—perhaps related to the wild asses of Nebuchadnezzar's time.

Two kinds of dogs only are found in Arabia. One looks like a coyote, being sharp-nosed and having pointed ears and a long bushy tail, his body covered with grayish brown hair. This dog is plainly part wolf, or maybe jackal. The other

BEDOUINS TRAINING FOR WAR AGAINST THE TURKS

The English and French succeeded in making good infantrymen of Bedouins, but the major part of their fighting was by cavalry or camel corps. One requirement for an applicant wishing to join the "crack" camel corps is to be able to vault into the saddle with the aid of one hand while the other holds a rifle.

dog is the slughi, a sort of greyhound, much used in coursing hares and gazelles.

Of wild animals there are but few kinds. In the hills north of Nejran and in Oman there lurks a small, fierce tiger, so bold that it readily attacks men. A particular pest is the *fahd,* or panther, which makes inroads on flocks all over the peninsula. Then there are wolves, foxes, and hyenas, and down in Yemen a few long-tailed, black-faced monkeys.

As far north as Bagdad one sees the graceful little jerboa, or kangaroo rat, skipping swiftly over the plain. This tiny creature is white and fawn-colored, with a long tail and powerful hind legs, built for long jumping. The Bedouins eat it, its flavor being similar to that of rabbit.

CRUDE TOOLS AND DELICATE FILIGREE

The nomad tribes, from necessity, have always tanned their own leather, woven coarse cloth for their zibboons, tents, and blankets, and practiced rough blacksmith work, saddlery, and sandal-making.

In towns like Maskat and Jidda some beautifully woven stuffs are produced, including silk and gold-thread embroidery and silver and gold filigree work, bracelets, anklets, spangles, and other jewelry. There are also a few skilled metal-workers at Maskat, as at Bagdad, whose work in steel is highly regarded. Swords, spears, and knives are largely manufactured, all by hand, and the trade in them is brisk and constant.

But all over Arabia production is curtailed by crude, primitive tools, the utter absence of lathes, drills, etc., and often by the scarcity of raw material, much of which is imported. Few skilled workmen, and no factories at all as we know them, with machinery, warehouses, and long pay-rolls, exist anywhere in Arabia. There are not even any good brick-

Photograph from Frederick Simpich

FISH CAUGHT IN MASKAT HARBOR: NOTE THE METHOD OF PACKING HAMPERS ON THE DONKEY

This picture belongs under the head of food-supply rather than fisherman's luck, for it is only in countries where tired business men outnumber hungry stomachs that fishing becomes a recreation rather than a business. So plentiful are fish around Maskat that in times of drought dried fish are fed to cattle.

masons, and there is nothing in the mud-walled architecture and ugly brick houses of Arab towns to show any national standard of architecture.

The Koran also forbids an Arab to paint, hew, or carve anything representative of the human body or of any other living creature; so in all their crude painting and sculpture they limit their designs to figures of flowers, trees, vegetables, the heavenly bodies, or to fantastic patterns and color combinations.

ROMANCE AND WEALTH OF ARABIA'S PEARL FISHERIES

Bahrein, the remote Arab isle in the Persian Gulf, which is the reputed birthplace of the Phœnicians, has played an important part in the eventful history of the Middle East. Tradition says the lustrous pearls that gleamed on the breast of the Queen of Sheba were fished up from the hot, dangerous depths of these waters. And long before the flood, says Babylonian mythology, a great creature, half man and half fish, called "Oannes," came up from the waters of Bahrein, strode ashore, and went north to teach culture to the Chaldeans! Here, too, are strange, mysterious ruins awaiting the pick and spade of exploring antiquarians.

But it is the big, high-priced pearls rather than ruined cities that make modern Bahrein a coveted prize in the break-up of the Turkish Empire. For centuries fortunes have been fished up from these seas each year. On the adjacent Arab coast are certain sheiks in whose tribes pearls of great price have been handed down for generations, and Ishtar, the dissolute Babylonian princess, is said to have worn a necklace of Bahrein pearls which

A STREET SCENE IN JIDDA, THE NEW YORK AND LIVERPOOL OF THE NEW KINGDOM OF HEJAZ

The first impression of the visitor to the Near East is that the porous walls must harbor all the insects and diseases in the calendar. Only in the better houses and buildings are the rough exteriors plastered and then painted in vivid tints that only an Oriental sun can harmonize into a charming view.

Photograph from Charles K. Moser

OLD ADEN, SPREAD OUT UPON THE FLOOR OF A CRATER, WITH FIRE-WORN WALLS OF ROCK TOWERING ABOVE IT

This Arabian seaport is the greatest camel market in the world and is the center of trade for the Yemen region. The barren Aden peninsula, about 15 square miles in area, together with 65 square miles of adjacent territory, including the island of Perim, came under the British flag 80 years ago, and has been so strongly fortified that it is appropriately called the Gibraltar of the East.

was so long that even when she stood upright it brushed on the ground.

This fierce, hazardous pearl quest is pursued now just as in the days of King Solomon. "As long as there are pretty women there will be men buying pearls," a Jew at Bassora told me.

From June to November often as many as 5,000 small boats, each carrying from 6 to 15 men, are busy fishing for pearls off Bahrein and along the Arab coast. It is a precarious trade, calling for courage, skill, and strength. Scores of stalwart divers die each season from shark bites, the stings of poisonous rays, and from other accidents.

HOW THE PEARL DIVER WORKS

The divers work in from 5 to 20 fathoms of water, although 7 fathoms is perhaps the average depth. The best pearls seem to come from the deeper waters.

The method of diving is simple. A big naked man, usually an Abyssinian, puts a forked bone over his nose and presses beeswax into his ears to keep out the salt water. Then he ties a stone to his feet, heavy enough to pull him down. About his waist is slung a net basket in which to carry the oysters he finds at the bottom. As he slides over the boat's rail and sinks into the sea, he carries with him one end of a life-line, the other end being held by comrades in the boat. When the diver is ready to come up with his catch or if danger threatens, he jerks on this life-line as a miner pulls the signal rope in a shaft.

The diver usually remains under water a minute or more. One Arab writer, Ibn Batutah, solemnly asserts that long ago Arab divers could stay under water for two hours! But modern Arab divers are not so long-winded. As it is, many die each season from loss of blood, induced by diving too deep or remaining under water too long. I have seen a man come up from a 10-fathom dive bleeding at the nose as if struck with a club. It was of these dangers that Matthew Arnold wrote in that affecting simile:

"And dear as the wet diver to the eyes
Of his pale wife, who waits and weeps on shore,
By sands of Bahrein, in the Persian Gulf;
Plunging all day in the blue waves, at night,
Having made up his tale of precious pearls,
Rejoins her in their hut upon the shore."

Under low sheds on the beach the oysters are opened and searched for pearls. A small brass sieve, equipped with three sets of holes, is used for sorting the gems. The pearls that will not go through the largest holes in the sieve are called "ras"; the residue of the second sieving are called "batin," and the smallest ones, the content of the last sieving, are called "dzel."

WILD NIGHTS IN THE PEARL PORTS

Black pearls of sinister luster are often found in the Bahrein waters, and many times the tiny steel-colored "seed pearls" are brought up.

In the busy pearling season often 1,000 boats are anchored at one time off Bahrein, and Menameh, its principal port, is crowded with fishermen, buyers, and gamblers.

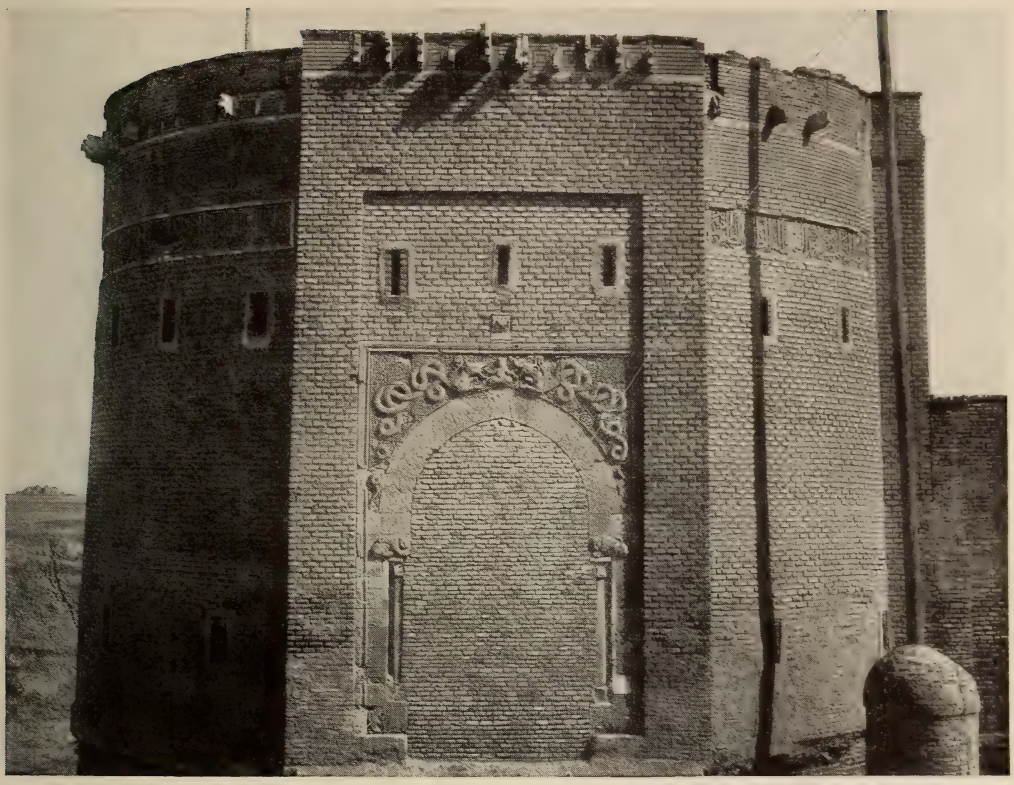
A night on this barbaric, tumultuous beach is not readily forgotten. A long row of mud-walled, straw-covered coffee shops stretches the length of Menameh's water front, and from red sunset till flaring, noisy dawn the revels of the careless boatmen run their brawling course. There are cheap, gaudy native theaters, too, where slovenly Arab girls, all beads, bracelets, anklets, spangles, and tattoo work, wriggle and sway through the sinuous dances of the Oriental "midways."

And all about, cross-legged, reflective of eye, sipping coffee and murmuring quietly among themselves, sits the moneyed crowd of Hindus, Jews, and Parsees who have come to buy pearls. At Bushire, too, and at Bunder Abbas, on the Persian littoral, pearl traffic is brisk, and French buyers come out each season to buy for the great jewelers of Paris.

TRAFFICKING IN MERMAIDS' TEARS

Many of the finest pearls in the "best-matched" sets in America came originally from Bahrein, and as much as five million dollars' worth of pearls have been found off the island in one season.

Frequently imitation pearls, made in



Photograph by Frederick Simpich

A SPECIMEN OF ARAB FORTIFICATIONS: ONE OF THE GATES TO THE CITY OF BAGDAD, WALLED UP AFTER THE FALL OF THE CALIPH WHO BUILT IT

Western civilization owes a large debt to the Arab. It was under the caliphs that schools of therapeutics were established in Bagdad, and such terms as alcohol, alembic, and alkali, as well as apothecary symbols, testify to the Arab's contribution to the science of medicine.

Paris, are sneaked out to Bahrein by Levantine traders and sold even to Arab dealers.

Among the sentimental and romantic Arabs a peculiar legend is current as to the origin of pearls. They say that the gems are formed from mermaids' tears, which fall into the oyster while the shell is open.

Other superstitious beliefs prevail concerning these gems of the ocean deeps. For instance, it is a common practice (only among the rich, needless to say) to powder a pearl and swallow it either as a tonic for failing vigor or to ward off impending disease or ill luck; or a maiden may rub her eyes with a pearl, and thereafter, by merely gazing at a man, she may make him her slave! Black pearls, however, must be avoided, for Arabs see in them some sinister manifestation of the powers of darkness. Wealthy Arabs have chains of pearls, or "prayer beads," such as are carried by pious Moslems.

Just who owns the Bahrein Island group is not plain. An Arab sheik rules over it, and has a treaty with the British allowing the latter to maintain a consular agent there. In return for Britain's aid in protecting him from pirates, the sheik consults the British before granting pearling concessions to outsiders. For a long time Persia claimed Bahrein; later Turkey asserted her ownership, and other powers, barring possibly Great Britain, tacitly recognized the Sublime Porte's claim.

A considerable colony of American missionaries, of the American Arabian

Photograph from Frederick Simpich

THE TOMB OF ALI, "THE LION OF GOD," IN NEJEF

Ali was the fourth caliph, nephew and son-in-law of Mohammed, husband of Fatima and father of Hassan. He was born in Mecca, in the year 600, and killed at the age of sixty-one, at Kufa. The Shiite Moslems regard Ali as the first rightful caliph. Clocks are prominent features in Near Eastern architecture, not only because the Arabs introduced timepieces to Europe and because the people are too poor to carry watches, but also because the time changes daily with the sun, and even the watch-owner must reset his timepiece every twenty-four hours.

Mission, are active and well known among the Arabs in this region.

PEARL GAZING AND THE DESERT LAW

The population of Bahrein is a mixed lot, attracted from all over the Middle East by the adventurous, highly profitable pearling industry. Much inland trade, by caravan, passes through Bahrein, and a brisk commerce is carried on with the Arabian provinces of Hasa and Nejd.

At Koweit, on the mainland, the pearl trade is also lively. A singular story is told there of a magic pearl owned by an old hermit. With this pearl the hermit can locate lost treasures, work love charms, and bring bad luck to one's enemies, all for a consideration. Once, the story goes, he rented the pearl to an Arab whose young wife had run away with another man. The runaways had left Koweit on two swift Oman dromedaries and had a start of two days on the forsaken husband. But with the aid of the magic pearl he found their trail and held it. Each dawn he would hold the magic pearl toward the rising sun, and in it he would see a tiny picture of the fleeing couple, showing exactly their location on the rolling desert ahead of him. As the pursuer gained on the two fugitives, their picture in the magic pearl became plainer and plainer, till at last he came upon them, and the law of the desert was fulfilled. Then, holding up the pearl as before, he beheld nothing!

UNCLE SAM'S TRADE WITH ARABIA

Here at Koweit, too, East brushes West, often in strange, ludicrous ways. The covenant of bread and salt is kept; sheep are slain to seal vows. Life is simple, as in Abraham's time, except that sheiks carry Yankee "dollar watches," and squat, grinning, about talking machines made in New Jersey.

Up through old Eden the British have built a railway! And when the Arab leaders cast in their lot with Allenby and joined in this last crusade on Jerusalem, they deserted their dignified camels and rode in motors.

Although we have long done a rather brisk trade with the Arabs, Yankee salesmen are seldom or never seen in Arabian ports. American goods are handled by native importers at Aden, Hodeida or Maskat, or by the Indian merchants at Bombay, who reship to Arabia.

Since most of the trade routes in Arabia are mere caravan trails (there is only one railway—that from Damascus to Medina), all goods sent to that country are usually packed with a view to being carried to their final inland destination on mules or camels.

Boxes and bales somewhat oblong in

shape and of the required weight so that two of them will make a load for a mule or a camel are usually most suitable. The mule-load is 180 pounds, divided into two packages; the camel's load is 450 pounds, similarly divided. Traders say a good mule, so loaded, will make 15 miles a day and that a laden camel will do 12 miles.

In 1915-16 the United States bought a greater share of Arabia's exports than did any other country, and we sold the Arabs over 40,000,000 yards of sheetings, shirtings, drills, and jeans. Quite a mail-order business!

"Americani" unbleached cotton goods have long been held in high repute in Arabia. A few years ago 75 per cent of all the cotton goods used there came from the United States. The outbreak of war, however, and the consequent interruption of communications and shipping cut down our piece-goods trade with Arabia and let in Japanese and Indian cottons. But in spite of the present scarcity and high price of Yankee sheetings, the Arabs still prefer them because of their superior quality.

SEWING-MACHINES AND PHONOGRAPHS POPULAR IN ARABIA

Nearly all kerosene used for lighting purposes in Arabian towns and tents comes from the United States, and our sewing-machines, phonographs, and "dollar watches" are widely known from Bassora to the bazaars of Jidda. In Aden, Yankee-made motor cars and bicycles, safety razors, clocks, and typewriters are sold by native stores; and thousands of dollars' worth of American starch is imported, from which Arab candy-makers evolve the famous "Turkish Delight" of the confectionary shops.

Uncle Sam, in turn, buys much from the Arab traders; he would buy much more, probably, if we had better shipping facilities with that far-away land. The "Dromedary Date," a familiar package in grocery-store windows from Maine to Texas, comes from Maskat and Bassora, being picked, sorted, and packed by ring-nosed Arab women in black robes and mysterious yashmaks. From Yemen comes our Mocha coffee, and from Hodeida and Aden we get hundreds of thousands of goat and sheep skins. The

Photograph from Frederick Simpich

THE VEILED FIGURE BESPEAKS THE NEAR EAST

But the parasol indicates that the Hejaz woman has come in touch with the Occident.

Arabs are experts at skinning, and these hides seldom show a knife-cut. They are usually brine-cured, and are classified as firsts, seconds, and thirds. It takes an Arab, a Hindu, or a Bagdad Jew to judge these hides and skins accurately, and the American importer of Arab skins is practically obliged to do business through native brokers.

Sheep and goat skins are collected mostly at Mocha, Jidda, Hodeida, Kunfuda, and Jisan, and are usually carried to Aden by camel, the latter port being the chief hide market of the Red Sea country.

A new railway has been projected, to run north from the peninsula of Aden. Direct steamer service from India via Arab ports to New York is already being resumed, and, with the admission of the Kingdom of Hejaz to the family of na-

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AN ARAB CAMP AT THE FOOT OF MOUNT SINAI

Given a coffee-pot, a coffee-grinder, a camel-dung fire, a narghile, some Persian tobacco, and a live coal to keep it alight, and you have a men's club in almost any part of the Near East. The hospitality of the Bedouin is proverbial, and the man who has tasted the curdled milk of a desert goat forever after considers that the standard as a thirst-quencher.

tions, trade will no doubt increase considerably, especially our export sales of such necessaries as cloth, oil, glassware, tools, and perhaps firearms.

Moslem political power centered in Mecca, under a British protectorate, signifies the end of Islam's old policy of bigotry and exclusiveness. It may even banish forever the specter of a holy war in the Middle East, notwithstanding the Prophet's warning that "Paradise lies under the shadow of the Sword."

ARABIA'S LIFE A SEE-SAW

It is not easy to believe that the mighty Moslem faith will lose adherents because of the world war. But perchance the break-up of the Ottoman Empire and the passing of its hermit spirit will bring trade and the quickening influence of the Western World to these long somnolent regions.

"When Othman falls, Islam falls" is an old saying in the Levant. Certainly the founding of the new Arab State, under British control, marks the beginning of closer and more confidential relations between Christian and Moslem nations; and it means a tremendous gain to civilization in Britain's increased prestige over Moslem peoples in India, Asiatic Russia, Persia, Egypt, and elsewhere.

Possibly the Moslems of the Russian, French, and British territories can even be gradually assimilated politically, to emerge eventually from this melting pot as citizens and loyal subjects first and good Moslems afterward.

The Koranic faith withstood a terrific blow in the loss of the Sultan's power and standing, and it is a most significant fact that, whether he resides at Cairo or Mecca, the new head of the faith will be under Christian British influence, and Arabia will be open to the trade and travel of all nations.

In the long ago Arabia conquered Egypt, Syria, and Persia, and the Ommiad dynasty spread the conquest from India to Spain. Till the twelfth century, Arab rule in the Orient was supreme, and art, literature, and science flourished.

Freed of the Turkish yoke, Arabia may rise again.

THE LAND OF THE STALKING DEATH *

A Journey Through Starving Armenia on an American Relief Train

By Melville Chater

ASK the average American what he knows about the Transcaucasus, and he will probably draw from his boyhood memories the fact that it produced those blonde-haired beauties who used to be headline curiosities in dime museums. And if you particularize in Transcaucasian topography by asking "What do you know about Georgia?" it is ten to one that he will answer promptly, "Sherman marched through it."

And so, it was not without curiosity that I, as an average American, caught from a British transport's deck my first glimpse of those mountain-ringed shores which the maps of one's childhood depicted as a pea-green isthmus lying between the Black and Caspian Seas.

Everyone was on deck for the night—British Tommies and their officers, the little Mongol-faced Ghurkas, the tall and dignified Sikhs, the gray-clad nursing sisters—and even the Punjabi cooks in our fore hatchway ceased work on the flour-and-water cakes, which they had been baking incessantly for four days, and shaded their eyes toward the wide, squat port of Batum, with its foreground of British warcraft and its sky-line where the pear-shaped church domes of Russian civilization spired upward.

*For a map of the territory described by Mr. Chater in this article, see page 374.

Photograph by Maynard Owen Williams

TIFLIS, THE GAY CAPITAL OF THE NEW GEORGIAN REPUBLIC, FROM THE SLOPES OF MOUNT PLOSKAYA, UPON WHICH THE INHABITANTS PASS THE HOT NIGHTS OF SUMMER

This city of Transcaucasia presents many aspects of a modern metropolis of the West. Along its main business thoroughfare, the Golovinsky Prospekt, are restaurants, cafés, jewelry and art shops, a magnificent opera house, and an impressive viceregent's palace.

Photograph by Maynard Owen Williams

TROOP TRAINS: ONE FILLED WITH GEORGIANS, THE OTHER WITH RUSSIANS, ON THE RAILWAY TO TELAV, 35 MILES FROM TIFLIS

"At the Bolshevist revolution the Russian army of Caucasia flung down its arms and went home" (see text, page 397). As these trains passed, bitter denunciations were exchanged and swords were bared, but there was no bloodshed. Tcherkesoff, a gentle Georgian anarchist, took this occasion to deliver a philippic against the retreating Russians, and, strangely enough, the latter listened to his condemnation with much interest and agreed among themselves, "The little old gentleman is right; we ought to go on fighting."

Photograph by Melville Chater

ARMENIAN REFUGEES CARDING WOOL IN TIFLIS

It is not necessary to carry work to the refugees. They flock to the place where some honest task can win them food. The demoralization of Russian industry and transportation has made homespun the only available cloth in the Caucasus, and American charity serves the well-to-do while it saves the starving.

Out went the Black Sea's raw wind, like an extinguished candle, and over us crept a soft, warm land-breath, heavy with springtide, from the base of snow-capped mountains. And hardly were we trudging off over Batum's waterside ways—cobbled in high relief like Spotless Town, in the Country of Advertismentia—when the dingy scene burst into brilliant patches of blue and yellow, where February's violets were hawked for sale and mimosa trees drooped, heavy with bloom and scent—a sight to stun sea-wearied eyes, and to make one believe again in long-lost miracles.

I visited the British base-commander and mentioned Tiflis and a first-class carriage.

"Good Lord!" ejaculated the B. C. "Wish I could wave a wand and produce such a thing! Try the American flour-train that's moving out tonight. And here's an order for three days' rations. One never knows, you know."

And so I climbed aboard a stumpy little living-car, hitched midway on a long freight train, to be welcomed by a genial-faced American doctor, who was *en route* to gather data for one of the various relief commissions at home.

The B. C.'s warning that "one never knows" was well founded. As we lounged lethargically over the distance that required but sixteen hours from Batum to Tiflis in peace time, days passed uncounted, and the engineer held us up while he dropped off at various towns to spend the night with friends; and dogs snoozed and cats kittened under our car between the rails during lengthy waits on sidings.

Though we had American flour aboard, a British guard, Russian-built cars, an Armenian cook, and a Georgian engineer, we were not sufficiently polyglot to read the station signs, all of which had been changed from Russian lettering to that of Georgia's own peculiar alphabet. Yet the red flags which presently sprouted all along the line apprised us that we were

Photograph by Melville Chater

GOLOVINSKY PROSPEKT, TIFLIS, SHOWING THE GARRISON CATHEDRAL

This famous street is the Fifth Avenue of the Georgian capital. The building on the right is the First High School, and beyond the Cathedral, with its massive dome, is the building which was formerly the palace of the Viceroy of the Caucasus. After the revolution this building became the capitol of the Transcaucasian Republic.

traveling on the anniversary of the Russian revolution, and hence of Georgia's second birthday as a republic.

"EVERYBODY'S PLAYING DOLLS'-HOUSE"

As to what had been happening of late in the Transcaucasus, we were both quite ignorant until a friendly British boarding officer dropped in for the distance of a few stations and chatted with us over bully beef and tea.

"Everybody's playing dolls'-house in the Transcaucasus," he said. "There are five post-revolutionary republics up to the present, the three main ones being Georgia to the west, Erivan of the Armenians, which is centrally situated, and Azerbaijan, the Tatar State, on the east. This arrangement gives Georgia the Black Sea littoral, Azerbaijan the Caspian littoral, and the Armenians no seacoast at all.

"The republic-forming business was made possible, of course, by Russia's smash-up. Though the three States have formed what they call the Transcaucasian Commission, it hasn't been very successful on account of jealousies, boundary disputes, and that sort of thing. The Georgians backed the wrong horse; that is to say, they expressed their willingness to continue statehood under German protection, when the Boche troops entered at Batum. The Tatars, being Moslem, not only welcomed Turkey's 40,000 soldiers when they marched up from Asia Minor into Azerbaijan, but actually supplied troops to their army.

"At the Bolshevist revolution the Russian army of the Transcaucasus had flung down its arms and gone home, so there wasn't any one left to stop the Boche and Turk from having their way.

"The Erivan Republic—the Armenians, you know—refused to join hands with the Central Powers and held out pluckily with a small force until the Turks had driven them to within six miles of their capital. Just about that time Bulgaria sued for peace, and within the next few

THE HANDSOME THOROUGHFARE IN TIFLIS WHICH BEARS THE NAME OF RUSSIA'S GREAT POET, PUSHKIN

Just beyond the caravansary to the left is a large bust of the famous author of "The Prisoner in the Caucasus" and of many other works which are greatly loved by the Georgians and Armenians as well as the Russian residents in the Caucasus.

Photographs by Melville Chater

THE CARAVANSARY OF TIFLIS, HUB OF THE CAUCASUS

This fine building no longer serves the purpose of a resting place for the slow-paced caravan. In front of the huge building most of the electric trolleys of Tiflis now stop. The ornate equipage in the foreground is a Georgian hearse.

weeks the British entered the Transcaucasus at Baku, the Germans cleared out, and Turkey threw up the sponge.

MORE THAN A HUNDRED DIFFERENT PEOPLES IN THIS REGION

"Since then we've been doing a kind of police job here, while the Peace Table—heaven help it!—decides. What with a hundred and twenty different peoples, or tribes, in the Transcaucasus, it's even worse than the Balkans.

"Meanwhile the country's flooded with a billion and a half of paper rubles, issued jointly by the States. The Georgians kept most of it. They're great spenders, and just go on turning out more paper money as it's needed. Their Treasury Department is officially known as the Bureau of Public Printing, and when recently they ran out of printing ink, they applied to us for a loan of two thousand British pounds, so as to go off somewhere and buy more. Cool, eh?

"All three States are doing a lively customs business, there being a baggage inspection at each of the frontiers, which keeps a civilian passenger pretty busy turning out his traps every hundred miles or so.

"Through railroad traffic is almost impossible because of squabbles over the rolling stock. When freight cars arrive from Erivan, the Georgians paint out the Armenian lettering and stencil on their own. And, of course, the Armenians are busy at the same game with Georgian freight cars at their end of the line. Yes, I'd say that the life-blood of the Transcaucasian republics consists of printing ink and paint.

HOW TWELVE BRITISH SOLDIERS BROUGHT PEACE

"Then there was their little postscript war last December. The Georgians and Armenians fell at loggerheads over some boundary dispute, and the latter were getting the best of it. Well, one day an officer of ours, with a dozen or so Tommies, comes along to where the two armies lay on either side of the railroad, about to go at it again. The officer chap jumps in between the opposing forces and makes a bit of a speech from the railroad ties.

"'Commanders of the Georgian and Armenian Armies in being,' he says, 'since you can't carry on without killing some of His Majesty's forces, I propose an armistice.'

"So the British army of twelve sat down to its tea, in between the firing lines, while terms were concluded. And now we are occupying the disputed region, in trust, as it were, and the two republics have called off the dogs of war. Peace reigns in Georgia."

Hardly had our friend uttered these words when the brakes began grinding, the train came to a stop, and a fusillade of musketry rang out in the near-by town.

"*Comparative* peace—I beg your pardon," added the boarding officer with a smile. "Firearms are as necessary to a Georgian's happiness as dolls are to little girls. They must be always shooting, if it's only among themselves. Today's their Red Anniversary, you know, and I suppose that what we hear is the result of a vodka party."

Five minutes later there climbed aboard a rather scared looking Georgian official. He sought out the British colonel commanding our train and appealed to him for assistance against the crowd of Georgian convivialists who were shooting up the countryside.

"LEND US A BRITAIN THOMAS!"

"Is it war, or mere joy?" coldly inquired the colonel, who knew the Georgian temperament."

"It is—revolutionary enthusiasm," responded the official, speaking in broken English. "If you have a Thomas—a Great Britain Thomas or so to lend us"——

"'Fraid not," said the colonel. "I have just four men with me."

"It is enough!" exclaimed the official joyfully. "The Great Britain Thomas is much respected by my countrymen."

"So sorry!" And the colonel brought the interview to a close. To us he remarked after the official's withdrawal. "They obstruct us, shoot our sentries in the back, actually rob 'em of their uniforms when they catch them alone; and yet at the first signs of disturbance they call upon the Great Britain Thomas to restore order."

Photograph by Maynard Owen Williams

A DISTANT VIEW OF MOUNT KASBEK, ONE OF THE HIGHEST SUMMITS OF THE CAUCASUS

The village in the middle distance is Gergeti. On the hill to the left may be seen the ruins of the church of Tzminda-Sameba, which is the favorite lookout for a marvelous sunrise view.

The Pontic Mountains' snow peaks dwindled away behind us; we crossed the fertile plains where lay Kutais, the ancient Colchis, reminiscent of Greek colonization and of the fabled Argonauts; we passed sandy and sterile tracts, where rock-hewn caverns in the overhanging heights represented the long-emptied cells of medieval monasticism; and at last one evening we slid down into an encircling cup of hills wherein glimmered the outstretched lights of Tiflis.

TIFLIS A CITY OF SURPRISES

Though one has penetrated fairly far into the East at Tiflis, if one expects vistas of caravans, camels, and Rebekahs-at-the-well, he will suffer disillusionment in his first impressions. The Golovinsky Prospekt, which runs through the heart of the Georgian capital, is as handsome a bit of modern metropolitanism as can be found anywhere. With its restaurants and cafés, its jewelers, art shops and opera, its vice-regal palace—now ousted of the Romanoff dynasty's last grand ducal viceregent, and flying the Georgian republic's black and cerise flag—the Prospekt, especially when seen in the lounging hour, is undeniably *chic*.

Here stroll Russians, Georgians, Armenians, and the representatives of a score of mountain tribes who have business in the new capital. There is a splendor of uniforms and of side-arms, the Caucasian national costume dominating the picture. A very long, swagger overgarment of brown or gray, padded square at the shoulders, with wasp-like waist, and descending as a smartly flared skirt—this, together with high, heel-less boots, a square astrakhan cap, a clanking sword, two magnificently chased daggers, a brace of pistols, and sixteen fountain-pens strung across his chest represents what I would term the picturesque scenery worn by your typical Georgian in war, in peace, and in the bosom of his countrymen.

What I have called fountain-pens turned out to be more weapons—hollow tubes, anciently designed to contain powder and shot.

One looks at these magnificently accoutered swaggerers, with their stiff mustaches and close-shaven skulls, and thinks of comic opera and of the dear old Kingdom of Zenda; also one trembles for the League of Nations, fearing that the Georgian will never consent to a reduction of his armament.

WHERE EVERY ONE WEARS A UNIFORM

Mere militarism has no mortgage on uniforms at Tiflis. Everybody wears one, including school children and their teachers, according to Russian custom; and hundreds upon hundreds of civilians are thus attired because, clothes being scarce and expensive, they prefer buying some officer's cast-off outfit.

I had almost overlooked the presence of the British uniform along the Prospekt; and perhaps that is because the British, being in occupation, comport themselves so quietly. Compared to the arsenal-carrying Georgian, the British officer, with his little swagger stick, is an exemplification of that "invisible force" principle which makes one believe in the League of Nations.

The Tommy, too, is seen everywhere, having adapted himself to the ways and speech of the Georgian, after his own peculiar method.

THE ART OF CONVERSATION IN GEORGIA

The Doctor and I were puzzled by one Tommy who stood on the street corner with a Georgian soldier, carrying on what seemed to be fluent conversation. We afterward questioned him about it.

"You don't speak Georgian?" asked the Doctor.

"No, sir," answered Tommy.

"And that Georgian doesn't understand English?"

"No, sir."

We stared at each other.

"How on earth, then, do you manage it?" asked the Doctor.

"Well, you see it's this way, sir," replied Thomas with the utmost solemnity. "One of these 'ere foreign chaps 'll come up and say to me, 'Nitchyvilla, nitchyvilla?' And I'll say to 'im, 'Don't mind if I *do* 'ave one.' And then maybe 'ee 'll say to me 'Bittsky-ittsky, boo!' And then I biffs 'im one on the jaw."

"But why?" I asked. "Why knock him down?"

"Because, sir," answered Thomas with

Photograph by Maynard Owen Williams

MOUNT ARARAT IS THE HOARY SUMMIT LOOKING DOWN UPON THIS STRATEGIC RAILWAY

This picture was taken when the Russians were retreating from the Caucasus front, thus giving over the Armenians, who had formed their conquering vanguard, to the cruelty of the Turks.

simplicity, "for all I know, sir, 'ee may be making insulting remarks about me."

HOW THE GEORGIAN ENTERTAINS

I have mentioned the "lounging hour." In fact, there are some sixteen of these to the Georgian's day, and perhaps it would be simpler to speak of *the* working hour. Between 2 and 3 o'clock in the afternoon, down go the steel lattices which guard the shop windows—windows which present to your amazed glance a fifth-year war stock of champagne, liqueurs, and articles de luxe of every kind; then Tiflis resumes its national pastime of *joie de vivre* until 6 o'clock of the following morning; for that is the hour when the Georgians' all-night parties break up—break up, I mean, with a crash of china and with shots exchanged across the table.

The Georgian is renowned for his hospitality. His customary greeting is, "While in Tiflis you will consider my home yours"—an offer which was tendered us so regularly that we suffered, I may almost say, from an embarrassment of homes.

The Georgian dinner-party, a mighty matter of courses and wines, begins at 2.30 in the afternoon and lasts until 5. Then there will be a dance in the evening, refreshments commencing at 9 o'clock and continuing between dance-numbers until the company reels homeward in the dawn.

Occasionally the floor is cleared for a dagger-dance, a picturesque and barbaric business performed to a rhythmic accompaniment of hand-clapping by some tall, beskirted native, who prances murderously about with from five to seven daggers held between his teeth.

The Georgian public function is a superb affair of uniforms, healths drunk, huzzahs, celebrities carried shoulder-

Photograph by Melville Chater

A FAMILY OF YEZIDI REFUGEES STEALING A RIDE ON AN AMERICAN RELIEF TRAIN

Rumor and hunger conspire to keep the refugees of the Transcaucasus in motion. Many of the people have nothing to leave behind, and the report that food can be had at some remote place starts a melancholy migration for bread. Neither the Moslems nor the Christians have harmed the Yezidis, but famine is no respecter of persons or religions.

high about the room, and a chorus of liveried trumpeters who sound fanfares at the close of every toast. Once again one realizes that, though the Georgians have gone red republican, Zenda's dear old comic-opera kingdom still lies deep in their hearts.

THE GEORGIAN IS ENJOYING A BELSHAZZAR'S FEAST

In short, the Georgian has absorbed all that was worst in the luxurious Russian civilization, under which he lived from the conquest of the Transcaucasus in 1801 to the downfall of Tsardom. Of earlier influences, the Persian is betrayed in his national costumes and in his arts, which have been completely obliterated by the Turks. He and his language alike are unclassifiable. They originated too far back of that respectably remote past when Tiflis was already a caravan center, linking East and West.

Whencever he came, the Georgian is of an ancient race, and embodies all of an ancient race's charm, together with its tendency toward degeneration. The Georgian nobility is a byword, resting upon a feudalism which endured so long as to become an anachronism and a decay.

What with an incredibly fertile soil of pasture land and vineyards, exhaustless manganese mines, and an enriching tithe system, the Georgian noble sank into a sloth from which his present-day descendants have never risen, and which left them an easy prey to Russian upper-class luxury. Just now, drunk with the heady wine of sudden liberty, they are enjoying what looks to the outsider very much like a Belshazzar's feast.

SUCCORING 20,000 ARMENIANS IN TIFLIS

Mix solely with the Georgians and you would never realize that, huddled in Tiflis' back streets, there are some 20,000 Armenian refugees who are being cared for by the American Committee. These

Photograph by Melville Chater

"PLEASE, MISTER, LET US RIDE!"

This brother and sister, orphans, were begging for a train-ride to some other town, where there might be bread.

have been receiving about seven ounces of bread a day per head and are given the opportunity of gaining a living wage in the Committee's weaving factory. There one sees them at loom, compress, and vat, working the Georgian wool into an excellent fabric, which is put on sale at moderate prices.

One also sees the Committee's splendid work among the Armenian orphans, of whom there are some 4,000 at Tiflis. These, housed in donated residences and unused school buildings, attend class daily, cultivate vegetable gardens, and even carry on in playtime their people's tradition of industry. It is a droll and pathetic sight to watch little boys and girls, each with a ball of wool and a set of needles, moving in and out amid scenes of leap-frog and dolls'-house, knitting their own socks.

Having remained long enough at Tiflis to watch the unloading and distribution of several cars of flour, the American

physician and I entrained again and were soon passing through magnificent mountain scenery fairly Alpine in character—snow peaks far overhead, and herds agraze in the green lowlands, where the yellow *loriki* shrub blazed along the banks of muddy torrents.

Halting at a mountain village, where tall herdsmen in fleece-lined jackets and disheveled, mop-like headgear turned aside from their shaggy flocks to stare at our American khaki, we discovered that we were in the disputed zone between Georgia and Armenia.

Notwithstanding a posted proclamation which forbade the carrying of firearms, our Georgian engine-driver virtually put a pistol to our heads by refusing to go further until three hundred rubles were paid him. Now, engine-drivers are hardly as common as snowballs in the Bambak Defile, and some American officials in a carriage ahead of ours weakly produced the required sum.

CURBING THE CUPIDITY OF A GEORGIAN BLACKMAILER

I strolled out on the platform and shook hands with a pink-cheeked British youngster, who, assisted by a handful of Sikh troops, was "keeping the line clear," as he expressed it, in those distant and dubious regions.

"How do you do?" said the youngster politely. "Engine running all right, I hope?"

"It ought to," I replied. "We've just greased the driver with three hundred rubles."

"Ye gods!" ejaculated the youngster, and was off like a cracked whip. Before you knew it, he had confronted the wretched blackmailer with accusers, had reimbursed our party from the man's pockets, and was giving certain orders to a couple of his Sikhs. The Americans, apprehending future trouble, were willing to waive the money. Not so the youthful Britisher.

"Sorry!" he said, with polite firmness. "But I can't, you know. No difficulties ahead, I assure you. Armed guard, a couple of bayonets at the fellow's back—really very simple, you know."

And that is how it was done. As we rolled off, answering the salute of that rosy-cheeked youngster—the only European in those troublesome mountain-ringed regions—a certain admiration which possessed us was given voice by some one who remarked thoughtfully, "And of such is the British Empire!"

THE TRAGIC-FACED CHORUS

From time to time an extra box-car was hitched on behind us and filled with the refugees, who wandered aimlessly about the station platforms. They were mere remnants of families—a woman who had lost her children, a husband who had lost his wife, a little boy who had nobody in the world and who wept to be taken along with us—anywhere, away from starvation—for all were emaciated, and showed frightened eyes that seemed to stare flinchingly at Famine's stalking specter.

"Where, sir? They're going nowhere in particular, sir," answered the British soldier whom I questioned. "They just travel up and down the line, day after day, looking for a town where maybe there'll be bread. Ah, *maybe!* They sleep and die on station platforms or else in the trains; and so it goes, week after week. But I'm thinking, sir, that they never find that town where there's bread."

Meanwhile the snowy peaks overhead, aglow in the sunset, lent their serene background and the mountain torrents their music to set off that ragged, tragic-faced chorus which wandered up and down their set scene—the gray, institutional-looking exterior of a Russian railway station.

Next morning we were across the border in Karakillissé, a mountain town which contained with its environs some ten thousand Armenian refugees. Here famine conditions had obtained for six months and, as elsewhere, the Turkish troops had left the place as bare as a picked bone. There was no flour, no seed, not an agricultural tool—nothing but Destitution, whose bony hand had laid blight everywhere.

The straggling streets showed boarded-up shops and masses of burlap-clothed wretches, who pressed about us with tears and prayers and outstretched hands. The local bake-shop contained a heap of flour, about the size of a child's sand pile, while near by stood a man with scales and

STARVING WOMEN IN THE TOWN OF IGDIR

"They will be dead in two days," the American Committee manager told the author. In cold Armenia there is no such ghastly exposure of protruding ribs and shrunken bodies as famine produces in India. Old women like these die of exposure and malnutrition before starvation marks their bodies enough to awaken sympathetic aid.

Photographs by Melville Chater

BEGGING FOR BREAD AS THE AMERICAN RELIEF TRAIN ARRIVES AT AN ARMENIAN STATION

Among the Armenian refugees are women who have a proud past and who are driven to beggary by indescribable conditions.

stone weights, offering withered apples for sale. The American Committee had distributed 85 tons of rice and flour in three weeks—a mere sop to starvation's maw.

The daily deaths totalled thirty, of which one-third were children. Herb-eating had bloated many of the faces that surged about us—faces so distorted as to express their hope of us with a ghastly semblance of ludicrousness.

"Bread, bread, bread!"

That low, moaning monotone, rising and falling like the sound of waves which search the arid shore, only to fall weakly back on themselves, pursued us through the streets and far out into the fields. And we left starvation's host gazing tragically after us, as men regard some passing vessel which skirts the barren island where they are marooned with death.

A CITY OF HARROWING SILENCE

That night we passed the mountains' summit through the blinding smoke of wind-swept snow drifts, and by next morning we had regained springtime's balm and verdure in the valley at Alexandropol.

Before the flour-unloading began—indeed, before we were up—there were children about our car, attracted by the American flag which it flew. They were searching the ground with the spell-bound preoccupation of some one who has lost something infinitely small and precious. I say children, but I really mean wizened and ancient dwarfs, with wrinkled foreheads and those downward cheek creases which deepen when one smiles. Not that they were smiling, however; they had forgotten the way of that, long ago.

Occasionally I saw them stoop, reclaim something, and masticate. Presently the doctor came in, looking decidedly bad-tempered. I asked, "What are those children eating?"

"Candle grease," he answered gruffly. "Where's that extra loaf of bread?"

Alexandropol is a blasted town (the handiwork of the Turk upon retreating), with streets like the Slough of Despond; low, flat houses; long lines of sackclothed people sitting, lying, dozing, and dying, all in the spring sunlight; not a laborer at work, not a wheel turning save those of the wretched droshky which we commandeered.

Utter silence brooded over Alexandropol—a silence profound and sinister, as if the whole town were muffled out of respect for continuous burial. We found no violence, no disorder. The people showed the gentle somnolence of lotus-eaters, as they sat there in the long sun-bathed streets, feeding on hope.

HUMANITY MASSED LIKE BEES IN SWARMING TIME

Refugees whose numbers had grown in six weeks from 26,000 to 50,000, and in ten days from 50,000 to 58,000, filled the Russian barracks, where they were massed like bees in swarming time. As we walked through those dark, cell-like rooms of shattered windows and smoked ceilings, not a bed or chair was to be seen, but only groups of wretched humanity, huddled together on their common bed of dank flagstones.

Through the dimness we could see a multitude of hands stretched despairingly forth, and again that low drone of "Bread, bread, bread!" shook us as we passed. Those who were strong enough stumbled up and followed us out into the sunlight—an unforgettable throng of waxen faces and of wasted bodies that streamed with rags. To them we must have seemed as the bright god Baldur seemed to the damned spirits among whom he passed in dun Hela's realm.

"They are dying at a rate of from two hundred to two hundred fifty a day," said the manager of the American Committee, who had accompanied us thither. "Sometimes in merely passing between my house and my office I have counted fifteen bodies lying in the street. Our present stocks do not permit us to distribute more than from three and one-half to seven ounces of flour and less than two ounces of rice a day per person. As you will find everywhere throughout this country, the Turks swept Alexandropol bare when retiring.

A DAUGHTER IN EXCHANGE FOR A SACK OF FLOUR

"Over there runs the Arpa-Tchai, and beyond it lies the territory of the Tatars,

Photograph by Melville Chater

A SINGLE DAY'S RESCUE AT ERIVAN

Every bit of relief-work goes to aid some other bit. The task that provides a starving woman with honest bread provides a covering for these children.

who sided with the Turks and against the Armenians, and who were therefore left in comparative plenty. They even have seed grain, as you can tell by those distant patches of cultivation. The other night I met a young Armenian girl, accompanied by her parents, trudging to the river's edge. Presently the latter came back with a sack of Tatar flour instead of a daughter. The thing is not uncommon and is done by mutual consent. The girl is glad to eat her Tatar lord's food; the parents are glad to have saved her and themselves from starvation." . . .

ERIVAN, ARMENIA'S CAPITAL

Another day, and we had reached Erivan, the capital of Armenia's provisional republic and an inconceivable contrast to the Georgian government seat at Tiflis. At Erivan one finds no spacious prospekt nor viceregal palace, no smart shops, Russian opera, nor gay night life. To behold misery in Tiflis, one must search it out. In Erivan one cannot escape it.

This poor, straggling, dingy city of the plains, whose government offices suggest some hastily extemporized election headquarters and whose parliament chamber is rigged up with benches and cheesecloth in the auditorium of the second-class theater, boasts of but one beauty, and that—to speak in paradox—is forty miles away; for, in whatever quarter of Erivan you may be, lift your glance and great Ararat of eternal snows is seen brooding distantly over the mean streets with his aspect of majestic calm. He is the Armenian's Olympus, or rather say, the Sinai of a race which has known bondage and wilderness-wandering, and for centuries a people's imagination has turned toward him.

The little Erivan republic which centers about Ararat contains within its present limits less than 1,500 square miles—only one-half of which area is capable of high productivity—two hundred miles of railroad, and about two million people. It has been the center of refuge for Turkish Armenians ever since the massacre of 1915, and between 200,000 and 300,000 of them are camped within its borders.

As for the city itself, its former population of 40,000 has been doubled by this influx. There starvation and typhus have

Photograph by Melville Chater

ARMENIAN ORPHANS AT ALEXANDROPOL: THEY RECEIVE ONE-HALF POUND OF BREAD AND A LUMP OF SUGAR PER DAY

Alexandropol was once a famous frontier post. It is the junction point for the railway line to Persia and the Kars branch, over which the Armenians fled from Erzerum.

claimed their toll of 9,000, the death rate fluctuating between fifty and eighty a day.

There are eighty food stations scattered throughout the Erivan republic, distributing those tiny doles that represent Armenia's portion of the five thousand tons of American Committee flour which had entered the Transcaucasus up to March 1.

When one learns that this famine-and-plague-swept country has but forty-two physicians, only a scant hundred of women whom we would classify as nurses' assistants, and practically no medical supplies, one is not surprised to hear of outlying villages which have lost half of their population in ten days.

CHILDREN IN THE WEAVING SHOPS

Though the doctor and I were here to observe the worst phases of the situation, each of us waited for the other to suggest a trip to the Igdir region, where we were told starvation was most acute. Meanwhile we spent some few days in frequenting the American Committee's workshops, where men and women weave cloth from Georgian wool or build the looms for this purpose, and where mere children of fourteen are seen at their apprenticeships of clothes-cutting, shoemaking, braziery, and rug-weaving.

They were but refugees, these serious-eyed workers, whose families had been massacred, whose homes had been burned, and who had emerged from such horrors as have come to no other nation in the war; yet here they were, already at the tasks which would rehabilitate the Armenian nation of tomorrow.

The pig-tailed little girls who bent in pairs over the rug-weaving, their people's ancient art, replying shyly to questions which proved them to be survivors of the great massacres of 1915, were indeed a type of Armenia's fortitude which is even now building her up from the blood-soaked dust.

Toward that end of town where the refugees sleep ten on a floor, in mere cel-

Photograph by Melville Chater

AT THE END OF THE RAINBOW LIE PEACE AND PLENTY

Orphan refugees, who are hoping to reach some town where there is bread. These were the children who ate the candle-grease drippings alongside the Relief Committee car, in a land which is naturally fertile (see text, page 407).

lars, through the darkness of which old women are seen, Norn-like, spinning the weavers' thread, there are two market-places, the Bazaar of the Living and the Bazaar of the Dead. Under the high arches of the former may be seen those happy souls who, with a few precious paper rubles in hand (for one no longer thinks in mere kopecks in the Transcaucasus), may buy, per Russian pound of 14½ ounces, black bread for 28 cents, potatoes or unpolished rice for 50 cents, raisins or edible seed for 75 cents, or who may have his shoes soled and heeled for $6.25. But, in fact, the wearing of shoes would be dangerous, since one might well be murdered and robbed for that which brings nigh to one hundred dollars. And, anyway, the refugees do very well by wrapping their feet in bits of rotten carpet.

SELLING THE BELONGINGS OF THEIR DEAD

Behind this market stands the second bazaar, merely a sun-scorched acre of dirt, recognizably Eastern by reason of

Photograph by Melville Chater

REFUGEE BURIAL GROUND OUTSIDE ETCHMIADZIN

The name of this town means "The only begotten Son is descended," and the Armenian legend has it that here Christ appeared to Gregory the Illuminator in the year 303. Today the whole Erivan plain has become one vast burial ground, whose sanctity is not respected by the hunger-crazed people.

the mud-walled, turf-roofed huts which fringe its verge, and by the laden camels which stalk past, with their haughty and fatuous glance. Here it is that the dying come to sell the goods of their dead.

Penetrate the tattered throng that revolves unceasingly in its quest of purchasers and you recognize the husband selling his wife's head-dress, the wife selling her husband's coat, the son his sister's earring. Here a man displays the cheap lamp that once lit those of his household who are now gone down into darkness. There a woman carries the quilt upon which her baby died. Yonder a tottering graybeard holds in his one hand a woman's woven belt and in the other a man's watch.

Thus, laden with mementoes of broken homes and of dear dead ones, these ema-

Photograph by Melville Chater

"GIVE US THIS DAY OUR DAILY BREAD"

At Igdir, Armenian children eating their dole of boiled rice supplied by the American Committee. When others are forced to cannibalism, even this simple fare comes as a God-send.

ciated creatures pass by, silent as funeral mutes, profoundly unsolicitous; for though starvation may bring a man to dispose of his wife's burial clothes, he will not cry them for sale.

GAUNT TRAGEDY IN A CELLAR

Half a loaf of black bread will purchase yonder scarf, together with the owner's story, yet he will display no emotion as he parts with this last loved souvenir. One must eat, it seems, even that one may have tears to weep.

Up goes a sudden childish wail, which leads us to one of those dank cellars, the scene of an hourly common tragedy. Here on the stones, with two babies at her one side and a screaming ten-year old at her other, lies a stark, staring-eyed woman, dead amid these remnants of the household which she strove to preserve. Perhaps she will be found and buried—

Photograph by Melville Chater

ARMENIAN CHILDREN WEAVING RUGS IN THE AMERICAN COMMITTEE SHOPS AT ERIVAN

One aim of relief-work is to find some way of saving the self-respect of those who have lost all else, and honest labor does more to engender self-respect than does lavish, but misguided, charity.

in time. In time, too, the girl will pick up one child, lead the other, and go forth into the streets to beg. Their best possible future is that they may be found and passed through starvation's clearing-house to some orphanage.

In that dreadful, sun-baked quadrangle, which is surrounded by sleeping barracks containing not one chair, table, or bed, are herded some five hundred children, boys and girls, of from six to twelve years of age. It is doubly a clearing-house, since each morning an ox-cart carries off half a dozen of them for burial.

Here they sit on the earth, bowed like old men and women, or crawl off to die alone. I counted six dead, lying unnoticed in corners, like so many rats. Another two or three lay with arms and legs wide-stretched, still gasping faintly. Yet none of the central throng showed the least concern, and there was even a group of them squatting over some game with pebbles, a dead child or two lying on the edge of their circle.

Most of them are too weak to eat their little daily doles of bread, yet still their cry for it goes up, and one often sees a dead child lying with both hands sheltering a crust at his breast.

Somehow a memory of Maeterlinck's "Blue Bird" and of that exquisite scene, "The Land of the Unborn," came into my mind; and then I no longer saw that hideous ox-cart, whose driver went about, shaking recumbent children to learn if they were dead or not; for I knew that Father Time was somewhere near, with his great golden boat, to ferry these tired little kiddies away for a long sleep in an enchanted land—that of the unborn—where they would awaken to play and romp, while biding their turn to be ferried back earthward to their new mothers' arms.

The doctor and I hardly exchanged a phrase over those unforgettable sights at

Photograph by Melville Chater

SEEKING WHAT WARMTH THE SUN CAN GIVE

Alexandropol, whose people are dying at a rate of 200 to 250 a day, is almost a mile above sea-level. Refugees are forced to sleep in the open, and their weakened bodies eventually give up the fight for life. Note the snow on the hillsides, indicative of the bitter nights, for the variation between the warmth of noonday and the marrow-chilling cold of the darkness is unusually great at such a high altitude.

Erivan. From a free discussion of topics our relations had somehow changed to a rigid silence; and whenever we did speak, it only augmented a certain undercurrent of mutual irritation.

TO IGDIR THROUGH 40 MILES OF DESOLATION

A war-battered motor of American body, Russian tires, and second-hand parts from every country in the world jounced us to Igdir, across forty miles of flat country, throughout which mud-hut villages clustered and old trenches scored the plain, while Ararat loomed ever ahead, more dazzlingly white and sky-filling, as morning turned to noontide. Cutting his right shoulder, a faint line betrayed the cleft through which the great hordes of refugees had filed in their flight from Turkish Armenia during the massacres of 1915.

Three times in as many years have masses of these 300,000 people crossed and recrossed the mountains, advancing and retreating, as Russia threw the Turkish armies back or withdrew before them. In 1916 the refugees were even repatriated long enough to sow the soil, but not to reap the crops, which were abandoned to the enemy. Finally, at Bolshevism's outbreak, the disorganized Russian troops went home, leaving the Transcaucasus undefended. Of its main peoples, the Georgians welcomed the Germans, while the Tatars were coreligionists with the Turks; wherefore the latter's despoliations were directed solely against the Armenians.

The country through which we were passing revealed neither sowed acres nor cattle, nor sheep at graze; for seed, agricultural implements, and all else had been swept away by the enemy.

Once the Arax River was passed, however, one could recognize the Tatar villages by the presence of field animals and husbandry. Still farther on, the popula-

Photograph by Maynard Owen Williams

THREE ARMENIAN ORPHANS WORKING UNDER THE DIRECTION OF AN AMERICAN RELIEF COMMITTEE

This view shows the Armenian method of sawing lumber. The production of fifty boards is a good day's work for two men.

tion became preponderatingly Armenian once more. And now, across the wide plains which must lie tragically idle through these, the fleet, precious hours of sowing, everywhere we beheld women astoop, in the attitude of those who fill Millet's canvas, "The Gleaners." Had another Millet been there to study those emaciated figures and downcast, painfully searching faces, he could have touched the world's heart with a second masterpiece, called "The Root Diggers."

"WE ARE DYING, ALL DYING"

Suddenly an Armenian came dashing across the fields, to bar our passage—his face wild, his voice shrill with anguish. But he was not seeking protection from pursuing Tatars, as I had thought. He had seen American uniforms in our car—

Photograph by Melville Chater

A BULLOCK TRAIN LADEN WITH AMERICAN FLOUR GOING TO THE RESCUE

The slow progress of these plodding cattle makes little difference, for with swifter methods the relief stores would be exhausted before more aid could come.

the first promise of hope which had passed through that desolate section in many weeks—and he was telling us of the many refugees who lived over there, among that cluster of war-demolished mud huts, starving in this wilderness.

"We are dying, all dying!" he reiterated in a kind of delirium. And, though we told him we had not bread, it became necessary to remove him from the road, where he had thrown himself face downward under the car's wheels to prevent our departure.

Another, and a happier figure, was that of an old woman who hobbled up with a bright smile on her face to show us that day's bonanza—a miserable apronful of the roots which would keep her three motherless grandchildren alive for twenty-four hours more. Indeed, watch those painfully scrutinizing diggers, and the way they flock from spot to spot whenever some luxurious patch is detected, and you would think that they were searching for yellow metal, not mere roots, in the first feverish hours of a gold rush.

"DYING OR DEADS?"

As we neared Igdir our interpreter, a cheery, affable young Armenian, who had long since grown accustomed to the horrors of this famine-blighted land, turned to us from the front seat and inquired with just a trace of the showman's manner:

"What you like to see, gentlemens?"

"Conditions," snapped the doctor.

"You like best conditions of dyings or deads? Dyings is easy to see everywhere in the streets. But I know where many deads are, too—in what houses—if you like."

"Drive on!" I said hastily. "We'll decide later."

The town of Igdir, with its local and near-by populations of 30,000 Armenians, 20,000 Tatars, and 15,000 Yezidis, revealed some squalid streets with but a few people seated disconsolately here and there, as we drove in. Throughout those

tortuous, sun - beaten byways no children played and no animals roamed. The air was heavy with dreadful silence, such as hangs over plague - smitten communities.

We found the children, such as they were, inhabiting an orphanage wherein one sickened at putridity's horrible odor, and were informed that there were neither medicines nor disinfectants wherewith to allay the condition of the many little sick-beds.

Sick? Say, rather, the bed - ridden — a word which more justly describes those tiny, withered up, crone-like creatures, upon whose faces the skin seemed stretched to a drumhead's tightness; whose peering eyes shot terror and anguish, as if Death's presence were already perceptible to them, and who lay there at Famine's climax of physical exhaustion. In those young, yet grotesquely aged faces, we seemed to see a long lifetime of tragedy packed into eight or ten childish years.

Photograph by Maynard Owen Williams

HIS PARENTS HAVE BEEN SLAIN: HE STARVES

Armenia has thousands of such pitiable half-animals who are subsisting on roots and any bits of refuse they can find in the streets or fields.

"They'll all die," was the brusque observation of the doctor, who had taken one glimpse and gone out. "We can't do them any good. Silly business, anyway, to come out here in a broken-down car."

"We will see now conditions of the deads?" inquired our interpreter, sweetly. "Twenty-five deads was took out of one house here in one day. It is a big house, or khan. There would be plenty more deads in it by now."

The local manager of the American Committee, having heard of our arrival, turned up to greet us. With him we walked through the local bazaar—rows of mean shops that mocked starvation with their handfuls of nuts and withered fruit.

The mud huts which we visited presented an invariable picture—a barren, cave-like interior, lacking one stick of furniture or household utensil, and with a few bleached bones scattered here and there. The occupants, stretched on the clay floor, would half lift themselves to regard us with dazed and questioning

eyes. Those gaunt faces, those attenuated bodies clad in a shagginess of filthy rags, seemed centuries removed from civilization. You felt that you had stumbled into prehistoric man's den during some great famine year.

THE HUMAN LEVELED TO BRUTE BEAST

Suddenly a shriek went up and a woman rushed out of her hut, with agonized face and with hands lifted to heaven. Hers was such abandonment as proclaims that death has struck the firstborn; yet it was a tale of mere robbery. What the captured thief delivered back to her proved to be a paltry handful of roots. And upon entering the woman's house we found, in fact, her only daughter lying dead, not yet cold, while the mother crouched dry-eyed before a tiny fire, intently watching the pot wherein bubbled those precious roots, her next stomachful.

It was to have seen the soul dead and the human leveled to the brute beast.

Near by, in the open, fifty wizened children sat about a long board, eating the American Committee's daily dole of boiled rice. This was accomplished at a gulp; then the children scattered, searching the ground as I had seen others do beside our car at Alexandropol. Soon one was chewing a straw, another the paring of a horse's hoof, a third a captured beetle.

One seven-year-old girl crouched by herself, cracking something between two stones and licking her fingers. The doctor bent over, examining the object. He asked with peculiar sharpness, "Where did she get that—that bone?"

The child looked up with a scared, guilty glance; then her answer came through the interpreter, who said in a low voice, "Yonder in the graveyard."

I am not sure that we preserved our composure.

STARVATION OUTRUNS TYPHUS

We passed on, the doctor asking of our guide:

"Is there much typhus?"

"Not so much now," was the rejoinder, "for the reason that starvation is killing them more quickly than typhus could."

"What is the death-rate in the villages hereabout?"

"I will give you a few instances. There are some thirty villages in this district, and a recent census showed 2,277 deaths for a period of fifty days. Etchmiadzin contains 7,000 refugees, of whom 1,000 are dying each month. At Evgilar a population of 1,900 was reduced to 1,519 in ten days. During those same ten days Alletly's 965 people were diminished to 612, and Atgamar's 2,093 people to 1,530.

"In reality, the death-rate is much higher than these figures indicate. We cannot search every house once a day. The best we can do is to send ox-carts through the street each morning, so that the people can bring out their dead; but often they are too weak to rise from their beds for that purpose, and so the living and dead remain lying side by side. Perhaps a week or two will pass before"——

"I understand," said the doctor, briefly. "I also understand that American flour is not yet arriving in sufficient quantities to feed what must amount to half a million starving people. Tell me, then, what they eat beside mere roots?"

"Cats and dogs, for example. These have been sold at thirty to fifty rubles apiece. The other day a famished horse dropped dead in the streets, and in half an hour it was picked clean. And then—yes, I have seen it myself, between dead brother and living sister. She lay there beside him and told me what she was going to do. I urged her against it, but there was no bread to give her that day. And later, when they called to remove her brother's body, his right arm was gone."

GRAVES DUG WITH HUMAN BONES

We had taken a short cut toward where our car waited, and by chance we were skirting the cemetery. Our guide pointed thither and said:

"It is not a pleasant sight. You must understand that the Turks left this country so bare that there are not even spades. Graves must be dug with any available thing, even with human bones. If the dead has a relative—some one who is still strong enough to carry a weight—big stones are placed on the grave; but if not"—— He shrugged significantly.

Photograph by Maynard Owen Williams

OVERLOOKING "THE LAND OF THE STALKING DEATH" FROM ONE OF THE ANCIENT CAVES IN CASTLE ROCK, VAN

This sturdy Armenian youth acted as guide for a correspondent through knee-deep snow, and, although he was greatly in need of money, refused payment because the traveler was an American and because the Armenian's mother more than twenty years before had been cared for by American missionaries.

I asked, hardly knowing how to frame my question, "Exactly what—exactly *whom* do you mean?"

"I mean," he answered, "the pariah dogs by day, and under cover of night—well, come and see for yourselves."

I will never forget that terrible acre of earth — the low, boulder-heaped mounds, and those others, the unprotected graves, now revealed as empty, scooped-out holes, whose brinks were strewn about with remnants of torn-off garments, among which lay vague, blackened semblances of humanity. As we turned away, the apparition of a great yellow pariah dog, pawing among the graves, drew from us a volley of stones. Then, as he slunk guiltily off, a skeleton-like man sprang up from behind the wall (under cover of which he had been stalking his prey), and, braining the beast with a club, disappeared, carrying its carcass with him.

THEY WAIL, "GOD HAS FORSAKEN US"

Having seen enough, we started to leave Igdir with all the dignified speed possible, being halted by unlooked-for obstacles, such as impede one in an evil dream. Our farewells and thanks to the American Committee's manager seemed an endless proceeding, and upon reaching our car we found it blocked by a host of humanity, who, having learned that Americans were in the town, had hurried in from every village to plead their cause.

The Armenian leader spoke for his perishing people, the Tatar leader for his people, and the Yezidi for his. And, even as they spoke, old grayheads and tender children alike came groveling along the ground toward us on their faces and kissed our feet. One old woman—she sat disconsolately by the roadside holding a pet animal's pelt, which was recognizable by its cat's paws—wailed out with an ineffable broken gesture some words that the crowd re-echoed.

"They say," explained the manager, "that they have lost all hope; that God has forsaken them."

I shall never forget what followed. There arose a cry, coming from thousands of starved lips—a cry which was not a cheer, not a welcome nor Godspeed, but the last prayer of a dying people. It was addressed through us to that far-off land of generous hearts; and under the twilight, with Ararat gleaming overhead, it rang endlessly out through the death-smitten town: *"America! America! America!"*

"For God's sake start the car out of this hell-hole," stormed the doctor at me.

We rolled through the crowd and away. Four times our car broke down; once in the darkness we ran over a man's corpse amid-road, and all the way home the doctor and I were quarreling violently on every conceivable subject.

One sight alone cheered us. It was a long line of ox-carts, heaped high with bags of American flour, moving slowly across the thirty miles of country which lie between the railroad and Igdir. Upon breasting it we halted our car, jumped up, and shouted at the ox-drivers like mad men.

I don't quite know what we shouted, except that it meant "Hurry, hurry, hurry!" And all that night long, on our train bound Tiflisward, I heard the doctor walking up and down his end of the car, even as I was walking up and down my end of it.

THE HOPE FOR A SMITTEN PEOPLE

When we met at breakfast next morning, a little shamefaced and with decidedly effusive goodfellowship, I rediscovered him to be the same genial, courteous soul whom I had known before we had experienced a famine country's horrors. There were apologies for recent rudeness. He mentioned indigestion, I mentioned liver, and neither of us mentioned nerves.

Behind us, spectrally pale, against the heaven's blue, faded the last of Ararat. Silently we shared our last glimpse of it—shared, too, our hope for a smitten people who despaired lest God had forsaken their Sinai and them. Suddenly the doctor uttered my very thought:

"God bless America!" he said; "for America, with God's help, will do it!"

RUBY AND AMETHYST IN FERTILE FERGHANA

Their homeland lies to the north of the Pamir, that elevated region which forms the southeastern border of Bokhara and which native tribes call the "roof of the world." These little ladies in their parti-colored robes are Sarts, a term said to have originated with the nomads as an opprobrious nickname for sedentary peoples. Nowadays it is commonly applied to the city-folk of Central Asia as opposed to the agricultural, or rural, population.

A TURKOMAN SKIPPER WITH HIS DESERT SHIP MAKES THE PORT OF MERV

His camel cargo consists of two bales of felt. The pedestrian at the right, who resembles a bit of autumn foliage in his flowing robe of green, brown, and gold, is also a prosperous merchant attending the semi-weekly fair in this famous oasis city of Russian Turkestan.

DEVIL DEVOTEES OF THE CAUCASUS

These women belong to a sect of Devil-worshipers. They represent the Author of evil as a peacock and avoid mentioning his name. Calling themselves Dasni, they are found in Armenia, Kurdistan and the Caucasus.

THERE IS NO AGE OF PLAY FOR THE BOY SCOUTS OF ARMENIA

Sired by suffering, these lads are the stalwart hope of a people who are experiencing a rebirth of national life. They endured indescribable privations when their land was the battle-ground of the contending Turkish and Russian armies, but with the advent of peace they can lay aside their pathetic symbols of warfare and join the universal brotherhood of boyhood in alternate study and recreation.

RAGS MAY BE ROYAL RAIMENT WHEN WORN IN ARMENIA

Peasant and noble-born have suffered alike at the hands of the Turks for hundreds of years. Armenia was the first nation on earth to espouse the cause of Christianity, and today, after centuries of persecution, civilization promises her people surcease of sorrow.

THE LOVELIEST PRODUCT OF THE DESERT LOOM

The Bokhara rug merchant is fully conscious of the superior quality of his offering with its sheen of soft and sober colors. The long-fibered, spotless wool from which it was woven represents years of careful selection; its soothing reds are from Bokhara itself, its velvety blues from Afghanistan. Its warp and woof chronicle in the language of lasting beauty the desert maiden's labor, whose product is her marriage dower.

A TURKOMAN OF RUSSIAN TURKESTAN

With his shaggy sheepskin shako and his flowing caftan, he is an ideal artist's model, whether striding about the marketplace of Merv with unconscious grace, mounted on stalking camel and leading his caravan across the desert vastness, or swaying in perfect unison with his galloping steed of the steppes.

THE DAWN OF A BRIGHTER DAY IN ARMENIA

The stricken city of Van huddles at the base of historic Castle Rock on whose faces are chiseled the records of the kings of long ago. The Turks confiscated all the cattle of the inhabitants, but this Armenian is starting life anew with a herd which he has driven from Persia. The snow which softens the scarred and rugged outline of shattered homes only adds to the accumulated sufferings of the populace.

EVEN POVERTY MAKES A PICTURE IN THE NEAR EAST

This is the bread line at Van, the Armenian city which tradition says was founded by Semiramis, the famous Assyrian princess about whose name legend has woven a wealth of romance and spectacular achievement. During the bitter days of the World War, nine-tenths of a pound of bread a day was allotted to every Armenian who had the money with which to purchase it.

AMONG THE MENDERS IN SAMARKAND

Patience and skill are required in repairing broken crockery with the implement here employed—a bow drill, which bores tiny holes in the broken parts, after which the delicate pieces of china are adroitly bound together by means of copper rivets.

A RAINBOW WAS SHATTERED AND THE FRAGMENTS FELL IN THE GRAIN MARKET OF SAMARKAND

From the city which now boasts this peaceful, picturesque scene Timur the Lame once governed an empire that stretched from Siberia to the Dardanelles and from the Ganges to the Persian Gulf. The tomb of the Tatar conqueror, whose name is still used to strike terror to the hearts of children, lifts its dome of turquoise blue in a quiet section of the city, and nearby cluster the beautiful mausolea of his loved ones.

MELON MEN OF SAMARKAND, ONCE THE SHOW CITY OF CENTRAL ASIA

In such luscious fruit it would seem that Nature furnished the architects of the Near East the patterns after which they fashioned the domes of those ubiquitous mosques and mausolea whose undulant curves distinguish the sky-line of every Mohammedan city.

A PROFESSION OF ENTENTE CORDIALE BETWEEN SELLER AND BUYER IN BOKHARA

Perhaps it is the gorgeous rug in the foreground which has changed hands; if so, there is occasion for congratulating the purchaser upon his matchless new possession and the former owner upon the handsome sum which is exchanged when the two palms meet.

MORNING-GLORIES ADORNING AN OLD WALL IN BOKHARA

Wherever the male population of Bokhara foregathers there is a commingling of hues and tints rivaling a bed of pansies in full bloom. The sartorial plumage of the Bokhara beau is indeed marvelous to behold. It is as if he had swathed himself in the solar spectrum.

A BLIND FORTUNE-TELLER OF KOKAND

He is a pebble prophet, reading the future by means of bits of stone and gravel instead of tea-leaves, coffee-grounds, or slate-writing. While his affliction is a commercial asset rather than a handicap, the natives believing that he can see the future more clearly by virtue of the fact that he is not distracted by the sight of mundane things, it must be a terrible cross not to be able to see one's self in raiment that rivals the colors of a glass marble. In the left background is a native cobbler at work.

STUDYING THE MOHAMMEDAN SCRIPTURES

Bokhara is one of the world's great religious centers with its 364 mosques and its more than a hundred theological colleges. There is no quaker rule against color in the robes of its theologues, all of whom are seated. The individual standing at the right and wearing the ponderous sheepskin headgear is a Turkoman; his friend with the close-clipped cap is an Uzbeg.

SYRIA: THE LAND LINK OF HISTORY'S CHAIN

By Maynard Owen Williams

Author of "Russia's Orphan Races," "The Descendants of Confucius—Toilers of Shantung," "Between Massacres in Van," etc.

WHAT the Syria of the future most lacks is a past—some crucible of events that would have served to fuse her many races and religions. Various parts of Syria have had noble moments, but as a whole it has never been more than a subject land, without the unity or nationalism which once burned so brightly in the breasts of Phœnicians and Israelites, Hittites and Amorites.

Syria, unlike Poland and Czecho-Slovakia, now rehabilitated, must test the practicability of a self-determination of peoples, not because of an unwillingness on the part of the world to recognize her rights, but because of an inability on the part of the varying factions in Syria to assert them.

Syria needs good government, now that the power of the hated Turk is curtailed, in order that this oppressed land of latent wealth and mighty promise may realize its twentieth-century destiny.

Outside powers seek direction in Syrian affairs not solely from selfish motives. The growing demands of world commerce are lifting this land into a position of paramount importance and good government, security and favorable conditions for economic development are necessary to the new world.

TWIN GATEWAYS TO SYRIA'S FUTURE

Syria closes the east end of the Mediterranean and is bounded on the north by the Taurus Mountains. The Syrian and Arabian deserts limit further settlement to the east and south. But in connection with world commerce it has always been closely related to the fertile valleys of the Nile and the twin Mesopotamian rivers, and its commercial life of tomorrow cannot be divorced from that of Mesopotamia.

The future of Syria depends upon the development of two ports and upon who controls these strategic centers of politics and commerce. Alexandretta and Haifa will attain new importance as soon as the Dardanelles are internationalized and free passage, open to all nations, cuts across what Germany was forging as a Berlin-to-Bagdad route, all but 300 miles of which, between Nisibin and Tekrit, a few miles above Samarra, is now complete.

This new line of traffic from Alexandretta past Aleppo to the Euphrates River at Jerablus, connecting the oldest routes of international commerce, also separates two important lingual groups, for Turkish is generally spoken to the north of the railway and Arabic to the south.

WHERE ARGOSY MET CARAVAN HUGE LINERS SOON WILL DOCK

Whatever political adjustment is made between England and France, Italy and Greece, Arabia and Syria, conservative Mecca and liberal Beirut, Zionist and Greek Orthodox, Christian and Moslem, Maronite and Druse, the line of division between the Turkish and Arabic tongues will be significant, for language differences as well as those of race exert a profound effect on political life in the Levant.

The Haifa Railway separates northern Syria from the southern part, which has long been called Palestine. Haifa is of importance because it is the southernmost Syrian harbor capable of large development and is the terminus of the railway which is becoming the key to Jerusalem as well as the more important line to Damascus and Mesopotamia. It is the real prize of the Near East, for once more it is to become the greatest port of the eastern Mediterranean littoral, as it was when it served as the chief landing place of the Crusaders and the transship-

Photograph by Maynard Owen Williams

WHEN THE TURKS SWOOPED DOWN FROM THE AIR ON BEIRUT

On February 15, 1914, Fathy Bey and Sadek Bey, two Turkish aviators, arrived at Beirut on their way from Constantinople to Cairo. Vedrines, Bonnier, and Dracourt had preceded them by a few weeks. The Ottoman airmen are buried beside the tomb of Saladin, in Damascus; they fell to their death while passing over the Sea of Galilee, whose treacherous air currents dashed them to the ground near the famous field where the knightly Saracen defeated the Franks in the battle of Hattin. Air caravans above Syria will inevitably supplement railway traffic just as the thundering trains are already supplementing the leisurely traffic by camel caravan.

Photograph by Maynard Owen Williams

PILGRIMS RETURNING FROM MECCA BESIEGING A RUSSIAN STEAMER

Before the war, when the infrequent Russian steamer appeared off Beirut, bedding and cooking utensils were gathered with feverish haste, and the crafty Syrian boatmen could charge almost any price if they succeeded in getting their fares on board before the vessel's full quota of passengers was reached. The Tower of Babel was a tower of silence compared with the noise which ensued when two thousand Sarts, Georgians, Turkomans, and Tatars simultaneously called to Allah to discomfort their competitors and win them a place on the home-bound ship. The warship inside the breakwater is the French *Henry IV*, called the "Angry Cat" by the English-speaking community.

Photograph by Maynard Owen Williams

THE QUEENLY CARRIAGE OF THE SYRIAN WOMEN COMES FROM BEARING HEAVY BURDENS UPON THEIR HEADS

What two women can lift to its seemingly insecure position, one woman can carry for long distances over rough roads and steep paths. Usually the day's laundry is perched on top of the water-jar as the fair maiden returns from the wayside gossiping center to her mud-walled home.

ment point of the Venetian, Pisan, and Genoese trade from argosy to caravan.

WHERE ARABIC IS WORTH TEN CENTS A WORD

Great breakwaters more than four miles in length will run out from Haifa and its sister city, Acre, across the Bay of Acre, to inclose the finest harbor on the Syrian coast. That this harbor needs improvement if it is to become a port of world trade was made plain to me on my first visit there.

We had been delayed in Haifa until late afternoon and the usual evening breeze had begun to pile up the waves in what was to my Syrian companions a most alarming fashion. On leaving the steamer, we had made a bargain with the boatman that the round trip would cost us ten cents. The $1.50 difference between this charge and the two *mejidis* which a tourist must pay was due to the fact that we could all talk more or less Arabic. I could say, "Thy day be happy!" "How much?" and "God grant that all will be well with you!" but that was enough to make the difference.

Ten cents a passenger was quite enough for the half-mile row in calm weather, but one could see that, with the high waves making ten oarsmen necessary for handling the big boat, an additional payment of ten cents would probably be appreciated, if not demanded.

Once we left the protection of the tiny pier, the heavy boat began to dance and a Syrian priest who was our fellow-passenger began to pray. My Syrian friends were unaccustomed to the sea, and by way of strengthening their courage, like a boy whistling in the dark, they began to praise the efforts of the sturdy pirates who were rowing us.

Led by the lusty song of the stroke oar, these men boomed out a picturesque row-

ing song, tuned, like the chant of the Vikings, to the rolling rhythm of the dashing waves. Our bow would sink into a trough of the sea and the leader would sing one line of the song. Then a huge wave would crash against the boat and nine lusty voices would answer the challenge of Neptune. The effect was dramatic, if not exciting.

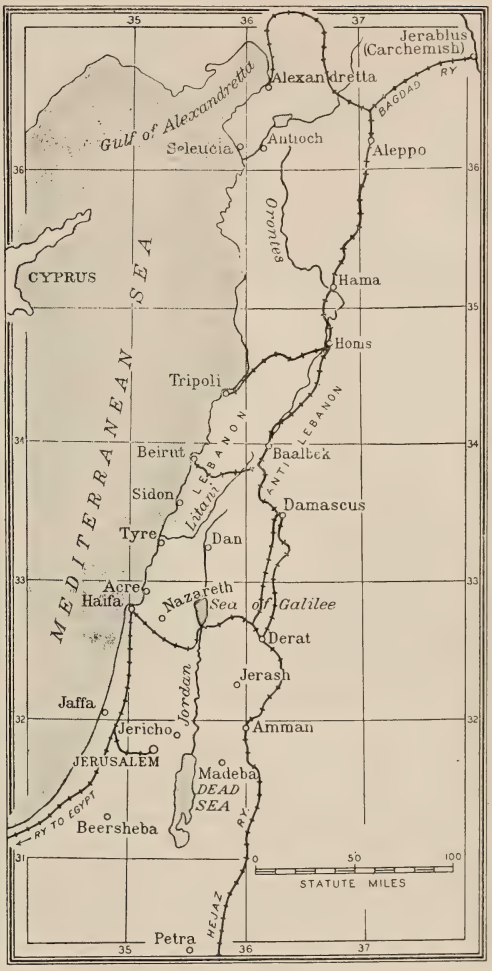
A NAUTICAL STAGE MANAGER'S SCENIC EFFECTS

When the leader saw the pale faces of his passengers, he proceeded to amass the evidence why he should be accorded a negotiable substitute for a Carnegie medal. He went out of his way to meet waves at their mightiest, so that the thud of the water would inspire a corresponding thud in our hearts, which would in turn result in a heavier thud at the base of his coin pocket. He ignored ten-cent waves and bucked dollar ones.

As we came alongside, but before we could catch the gangplank, a wave lifted and hurled our boat against the side of the ship, leaving us just in time to have the boat rail catch against the plating on the ship's side and almost upset us. That settled it. The boatman received a *mejidie* from each of his eleven passengers in return for his skill as a stage manager, although he had to wait to make his collection from the Syrian monk until that worthy had completed a little private Thanksgiving service.

Out there in Haifa is a boatman who is getting rich on account of the sea breeze that springs up each evening in the broad Bay of Acre. He is a sturdy, good-looking fellow, with his moustaches neatly waxed and his red tarboosh worn at a rakish angle, like the cap of a certain British admiral. His baggy Turkish trousers are held up by a broad sash of the finest silk and his heelless slippers, with their upturned points, are of the softest leather. His stroke oarsman has strangely bent toes where his naked foot braces against the seat for the thrust of the boom-like oar, and with a moving voice he leads a most dramatic rowing chorus, with Neptune's choir for antiphonal effects.

Those lovable pirates are going to re-



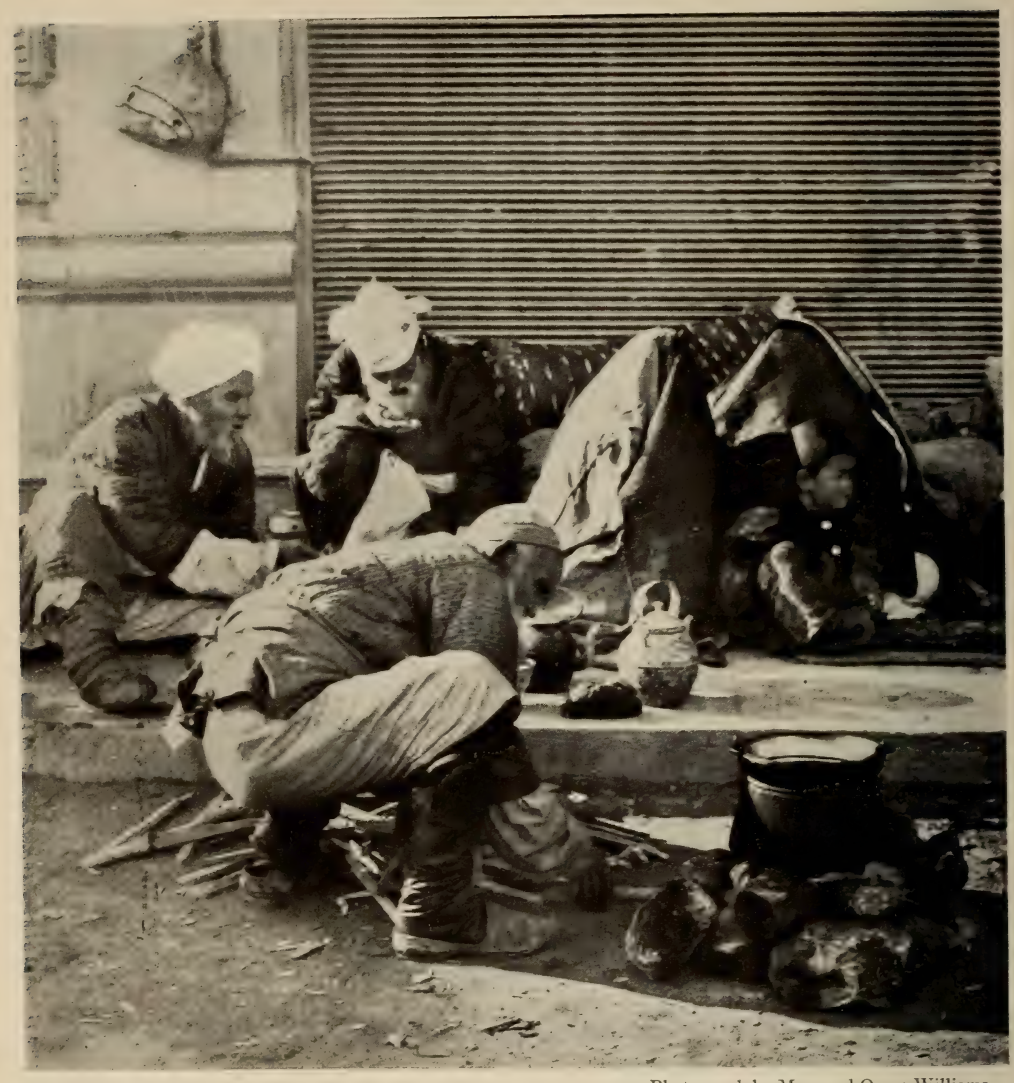
Drawn by A. H. Bumstead

A SKETCH MAP OF SYRIA

For the geographic relationship between this historic region and contiguous Mesopotamia, Arabia, and Armenia, see the map on page 374.

sent the building of a sea wall that will transform their surging deep into a peaceful millpond, where huge liners can tie up to the docks and discharge prosaic cargoes for the poetic East.

They will regret, as others will, the dehumanizing processes of modern commerce when applied to the most human of lands. But their days, like those of the camel-driver and the philosophical cabbie, are numbered. The unchanging East is yawning before a great awakening to its commercial value in a workaday world.



Photograph by Maynard Owen Williams

MECCA PILGRIMS FROM CENTRAL ASIA PREPARING TO COOK THEIR EVENING MEAL AT BEIRUT

Beirut was the chief Mohammedan pilgrim port of Syria before the World War, and when the pilgrimage was over and the travelers returned to this city to embark for the Black Sea ports and Central Asia, the wharf and all the vacant lots in the vicinity were filled with strange types. These Sarts from Samarkand, with their inevitable teapot and copper kettle, have camped-out here in a way that comes natural to the semi-nomad. The son and pride of the family seems most affected, for he has substituted the Turkish tarboosh for the Central Asian skull-cap.

Give the Turk credit for something. When he smashed his way to the gates of Vienna he started European greatness. When he spread unrest in Syria he drove Columbus across the Atlantic and Vasco da Gama around the Cape.

The Turk robbed Syria of greatness for three hundred years. Then came de Lesseps. When he opened the Suez Canal the world thought that Syria would henceforth be a wallflower among the nations.

But, while the world ignored her and the Turk plundered her, Syria knew that her day of glory was sure to come. East and West called to each other across the land link of history's chain and the Germans started the railway that was as inevitable as fate, following as it does the greatest trade route the world has ever known. How Germany overreached herself and how her dream of Pan-Germanism, built around this railway, was finally smashed in the Argonne and on the field of Armageddon is now familiar to all.

THE GEOGRAPHICAL DILEMMA OF A VALLEY PLATEAU

Various factors delayed the inevitable reopening of the historic trade route across Syria and Mesopotamia. The advance of the Turk threw Europe back upon itself to develop internally, and the discovery of America turned the attention of its peoples away from the spices and wealth of the East to the boundless resources and rich prizes of the West. The discovery of the sea route around Africa made available a safer passage to opulent India.

Mesopotamia is as fertile today as when it was the birthplace of human history and when the civilization that developed there had only the Nile Valley as a competitive field. But, like many parts of the earth once populous and now almost deserted, Mesopotamia is no halfway land. Such regions must either be the uncultivated roaming places of nomadic tribes or the seats of settled government and a centralized state. The inhabitants must either be few enough and mobile enough to seek through migrations the food upon which their flocks depend or stable enough to keep in repair vast irrigation systems which cause heavy crops to follow one another with assuring regularity.

Good government and the nomad are mutual enemies. Each has its day in districts whose poverty or prosperity depends upon whether water, which the abundant crops of the most fertile valleys must have, is utilized or goes to waste.

GEOGRAPHY—COQUETTE AND DICTATOR

The Greeks were *coaxed* to become navigators by the thickly scattered islands—stepping-stones to Empire—which tempted them, as the flowers of the field tempted Proserpina, farther and farther away. The Phœnicians were *forced* to sea by the inhospitable slopes of an unkroken mountain chain, but there stretched along the sea the strikingly fertile plain which to this day constitutes the garden land of Syria.

This rich plain made possible great fortunes, and Tyrian purple, obtained from the murex, became the badge of Phœnician aristocracy. As successive fields of this shell-fish became exhausted by the demands of fashion, the murex hunters, like the fur trappers of the frozen north, were driven farther and farther afield in search of the rare color which fashion decreed.

The tradition for travel which began in Phœnicia has come down to the Lebanon throughout the centuries, and when the massacre of 1860 occurred, Syrians from the persecuted land fled to America, where more than 400,000 are now residing.

FORGETTING BYGONES IN A VISION OF FUTURE GREATNESS

For them the future seemed to lie beneath the setting sun. But Syria is in Asia and its life will be wrapped up with the East of which it is a part.

Soon heavy trains, fired with oil from the Persian fields, will thunder along trade routes which plodding camels marked out when the world was young. Already, one may dine in Cairo and have luncheon the following day in Jerusalem. The step to Aleppo, Mosul, and Bagdad is short and all but 300 miles of the line is now open to traffic. However popular the route through central Europe along the famous Berlin-to-Bagdad line becomes, the safety of the British Empire demands that the railroad which follows the old line of communication between the valley of the Nile and the valleys of the Euphrates and the Tigris shall be kept in a state of perfection. There will be no Amanus or Taurus tunnels on this trail of the modern caravan, and an absence of heavy grades throughout a large part of the right of way will make it pos-

Photograph by Maynard Owen Williams

A FORECAST OF THE FUTURE AT JERABLUS STATION, WHERE THE BAGDAD RAILWAY CROSSES THE EUPHRATES

A camel caravan from Birejik passing the new station buildings on the Bagdad-to-Berlin line while slowly plodding toward Aleppo. Where the German built he had two ideas in mind: one was to prepare for the future, when the Bagdad Railway would extend the German power; the other was to sink so much money in equipment that the Turk could never free himself from the economic burden.

sible for the Cairo-to-Calcutta express to beat the fastest sea route by several days.

BY DE LUXE EXPRESS FROM TABLE MOUNTAIN TO THE GREAT WALL

Slowly but surely the iron rails are reaching out to bind Cape Town to Cairo and Suez to Shanghai by way of Persia, India, Burma, and the Yangtse Valley. The path of empire in the future will not alone be traced by the wakes of passing steamers, but also by bold bands of shining steel. The supreme strategy of a railway that will connect the valleys of the Nile, the Tigris and the Euphrates, the Indus, the Ganges, the Irriwaddy, and the Yangtse lies in the fact that it will be flanked by the most thickly settled portions of the world's surface and can, from the first, have commercial as well as strategic value.

Syria is the hub of the Afro-Eurasian continents, and with every railway that reaches out to Bremen, Baku, Bokhara, Burma, or Bloemfontein the central region of the world's greatest land-mass achieves new significance.

Aside from its importance as a trade route, Syria will find its greatest future as an agricultural nation, and has extensive regions which can be made to produce large crops. The Hauran, south of Damascus, has long been a granary and the massive ruins of Baalbek dominate a plain whose fertility was once sufficient to make possible lavish local expenditures and at the same time return large taxes to imperial Rome, which used Syria not as a sinking place for public funds, but as a source of revenue for the treasury on the Tiber. When Rome ruled, this remote province had enough and to spare; but not for long did golden eggs from Syria enrich the greedy Turk.

SYRIAN ART THREATENED BY EFFICIENCY AND SPEED

As an industrial land, Syria faces two possibilities. The co-operation between different parts of the country, which good government will make possible and which good communications will foster, will tend toward an expansion of industry and the establishment of factories to take the place of the household production which has hitherto been the rule.

But this very development may rob the larger output of that individuality which has made the rugs, the brasswork, the silk and linen products of Syria much desired by those who appreciate originality of design and perfection of finish. There is today one fairly large brasswork factory in Damascus, where tiny children hammer silver or copper wire into the engraved designs on the pitchers, basins, and trays of Damascene ware, but in almost no other case has industry risen above the stage of family production, which, though slow, insures distinctive products.

THE APPRECIATION OF WATER IN A DRY LAND

Water holds a high place, not only in the view of the abstemious Mohammedan, but of the Syrian Christian as well. The main attraction of the Damascus café is a tiny fountain, whose sight and sound delight the son of the desert vacationing in the urban oasis, or the Sart of Samarkand, wearied by his desert march to Mecca, who stops here and dreams of his distant Zerafshan.

Dan and Beersheba are popularly considered the termini of Palestine, as they formerly were of Hebrew territory. One grew up around a source of the Jordan, the other owed its existence to the age-old wells whose limestone rims have been grooved and polished by a million bucket ropes. No hotel register attests so long and distinguished a line of guests.

From Abraham to Allenby, the rope-worn signatures that rim Beersheba's seven wells bespeak romance and passions broad as human life. Here Abraham arrived with Sarah, his wife, and being unused to town ways and fearing harm, they registered as brother and sister. Later Sarah induced Abraham to drive Hagar and Ishmael out into the desert to die. Evidently cross-roads life did not improve Sarah's character.

A PECULIAR AUTOGRAPH ALBUM FULL OF FAMOUS NAMES

Here Abraham, the father of his race, received a message to kill his only son Isaac, and from this spot he set out with heavy heart to accomplish the task which he was saved from completing. Here Jacob robbed Esau of his birthright by methods that remind one of Launcelot Gobbo, and here he later stopped when as an old man he was on his way to visit his famous son, Joseph, in Egypt.

Here Samuel's sons practiced the profession of their distinguished father and here Elijah took refuge from the original Jezebel. All in all, Beersheba was as melodramatic as any frontier town and nightly gatherings beside those famous wells have discussed the rise and fall of nations since the world began.

A single spring determined the site of Nazareth, and Jacob's well still provides water in an otherwise thirsty land. To the tired traveler from the hills of Moab, the dirty Jordan seems a blessed refreshment after the dry ride; but Naaman, the leper, because he was accustomed to the crystal streams of his native city, scorned the coffee-colored flood which had been recommended to him as a cleansing agent. In Jerusalem, I was seldom able to withstand the tempting clatter of the drinking bowls of the seller of cooling drinks, but in the Lebanon, where cold, clear springs abound, one never seems to thirst.

THE BROOKS AND STILL WATERS OF SYRIA

Water bounds Syria on the west. The lack of it defines the eastern and southern boundaries. Many of the most pleasing pages of the Bible ripple with the songs of running brooks or praise the "still waters" of wells which have long marked the resting places of weary flocks and heavy-laden caravans.

In the Lebanon there are scores of springs or rivers gushing forth direct from the rock. The whole countryside facing the Mediterranean suggests the passage of a miracle-working Moses, practicing in these glorious dells the more difficult feat he was to perform in parched Sinai.

When the early inhabitants of Syria wanted to express gustatory delight, they could not speak of ambrosia and nectar, for their God was free from sensual appetites; but they chose two articles of human diet and expressed deliciousness by saying that a land flowed with milk and honey. That was in the days when bees, rather than beets, furnished the sweetening. In the Lebanon, two springs,

Photograph by Maynard Owen Williams

WHERE THE ORIGINAL ALEXANDER'S BAND PLAYED A VICTORY MARCH AFTER THE BATTLE OF ISSUS

Beilan is the only considerable village on the age-old road that led from the Mediterranean to the rich city of Antioch. The town has scores of cool springs and is a favorite summer resort for the residents of Alexandretta and Aleppo. A remarkable feature of Beilan is that its houses are of wood, which is enough to distinguish any Syrian village. After defeating Darius on the field of Issus, Alexander the Great passed through Beilan on his way to the Syrian Gates, just above the city.

Photograph by Archibald Forder

BEERSHEBA'S MUNICIPAL GUEST BOOK AND COUNTY RECORD

The close relation between man and water is strikingly marked in many parts of the world. Here, at one of Beersheba's seven ancient wells, five of which are still in use, countless thirsty travelers have with rope and water-jar recorded their visits in the limestone rims. In the Yangtse gorges just such deep grooves have been worn in the rocks by bamboo cables, which the Chinese coolies employ in dragging heavy junks past dangerous rapids to the rich province of Szechuan.

Photograph by Maynard Owen Williams

CONTEMPLATING A CHANGE OF STYLES ALONG THE EUPHRATES

"Made in Germany" is stamped all over the garish dress of this Euphrates Valley maiden. Nowhere did trade follow the railway to a greater extent than along the Bagdad line, and in the spring of 1914 Aleppo was a thriving commercial center of German trade. At the hotels engineers and merchants crowded the dinning-rooms and talked of a mighty future in Mesopotamia. That summer, war came, and the burning question of styles was rapidly succeeded by one of food enough to keep body and soul together.

the Honey Spring and the Milk Spring, are the sources of Dog River, from whose clear, cold waters busy Beirut is now refreshed.

Even on the hot plain between Mount Hermon and the Lake of Huleh the water which bubbles up from subterranean sources is very cold. At Shiba, high up on the sides of Mount Hermon, the water emerges from the rock with a temperature of 38 degrees Fahrenheit, and at Banias, where a temple to Pan once stood, and where Herod the Great erected a temple over the spring in honor of Augustus, the sparkling water has a temperature of 42 degrees. In summer, after a long hot walk across the plain, it is most refreshing to sit in the shade of Honey Valley and eat luscious Lebanon grapes, cooled by dipping them in the living water of the stream.

Judea is not well supplied with springs, and even a tiny trickle is sufficient to gain a name for the place. When the carriages between Jerusalem and Nablus dropped from the barren Judean plateau to the first of the broad Samarian valleys, every one used to get out to drink from the spring at Khan el Lubban.

DEAD-SEA BATHING AN ORDEAL WHICH ALL TOURISTS UNDERGO

The Jericho region is supplied with three kinds of water, and this prodigality, coupled with the historic fame of the Jordan Valley, has furnished a regular formula of bathing for pilgrims to this hot depression, nearly a quarter of a mile below the level of the sea.

Of course, every tourist has to bathe in the Dead Sea; it is the thing to do. Lucky is the man whose skin does not crack in the heat of the valley, for Dead Sea water on a cracked skin or the film of the eye reminds one of boiling oil and the Spanish Inquisition. Having performed the necessary rite and dutifully completed an experience which can be recorded in the diary of the trip, the poor pilgrim, laved with a tenacious fluid that seems to be composed of salt, kerosene, and lye, drives off to the Jordan and seeks relief in the muddy waters of that river. Then, as night rapidly settles in the deepest wrinkle on the face of Mother Earth, the tired traveler rides between the miserable hovels which constitute modern Jericho and dismounts at the Sultan's Spring, once sweetened by Elisha.

Here the water is collected in a large pool, both cold and clear, and few indeed resist the temptation to plunge into it and remove forever any lingering signs of the holy but muddy waters of the Jordan.

The traveler who is wise will not try to sleep in the hot hotel, whose confining walls seem to radiate discomfort, but will

stretch his bed beside the still waters of Sultan's Pool.

Water or the lack of it must always affect the development of Syria, but the supreme value of the land as a link between the production centers of Europe and the population centers of Asia must always make trade routes and cross-roads of traffic the locations for largest growth.

No amount of commercial travel, however, can cloud the importance of the heights where Judaism rose and declined and where Christ lived, taught, healed, and died.

Jerusalem at Easter time will long be a center of intense interest, and amid the many ceremonies that begin with a re-enacting of the washing of the feet and conclude with tearful gladness in the procession to the Risen Christ, there is no more wonderful and moving, yet revolting, spectacle than the Holy Fire celebration in the huge Church of the Holy Sepulcher, where ecclesiastical tradition has gathered together almost every spot connected with the life of Christ except Nazareth and the path of the flight into Egypt.

UNHOLY RITES IN THE HOLY CITY AT EASTER TIME

At this ceremony God is supposed by the ignorant pilgrims to send down a flame from heaven which bursts from the walls of the ornate sepulcher itself.

I was one of a party which saw the supposed divine event from the second gallery of the high rotunda, commanding a view of both sides of the sepulcher. Below us, covering the floor of the rotunda and huddled around the traditional tomb, were the pilgrims, thousands of them. Many of them had slept there all night or had at least held their places near the sacred spot. To the left were the Greeks—restless, voluble, inclined to dispute with the Moslem soldiers. To the right were the Armenians—quiet, patient, self-controlled.

Directly beneath us was the little Coptic chapel at the rear of the sepulcher. We were sixty feet above the surging crowd and the marble floor below. It was 11 o'clock—two hours before the holy fire would descend from heaven.

Forming a circle around the sepulcher,

Photograph by Maynard Owen Williams

A "NEBAA" ISSUING FROM A ROCK CLIFF

When a Syrian dragoman tries to convey to a foreigner the distinction between an *ain* and a *nebaa*, he represents the *ain* by touching his thumb and first finger and the *nebaa* by making a circle of his two arms. Here a fountain of icy water bursts from a towering rock wall whose height is suggested by the two horses at its base.

Photograph by Maynard Owen Williams

A RELIC OF THE DAYS BEFORE THE LEBANON WENT DRY

When the abstemious Turk supplanted the convivial Roman in the plateau between the Lebanon and the Anti-Lebanon, the once-famous temple of Bacchus went out of use, but its final indignity was to come when the Kaiser placed a glaring memorial tablet on its time-softened walls. The carvings that frame the doorway consist of conventional designs of flowers and sheaves of wheat, and delicate carvings of bacchantes and dryads, not so conventional.

half way between the supposed place of burial and the outer columns, were companies of Moslem soldiers—privates in ill-fitting costumes; officers in many kinds of shoulder-straps and caps, who seemed to lack authority over their men.

Then followed a pitiful scene. The soldiers found that there were too many pilgrims near the Chapel of the Angels, so they began to drag men and women out of places which they had held all night. White-haired, honest-faced Russians in tight-fitting jackets and black boots were dragged protesting from the crowd. There were babies there. One woman had stepped aside to nurse her little one and she was seized upon and thrust out into the dark recesses, outside the circle of massive columns. Protests, entreaties—all were useless. Gradually the struggling pilgrims were passed out through a fissure in the crowd.

The balconies are filled with visitors and celebrities — curiosity - seekers attracted by the spectacle and paying dearly for a cramped place from which they can see the show.

PATIENT PILGRIMS AND SKEPTICAL SIGHTSEERS

Gradually the temporary platforms in the archways just above the heads of the crowd become filled with visitors from the four corners of the earth. Spectacled American women, almost mannish, can be seen here and there. A young American beauty climbs a ladder to a place on one of the platforms. English women, French women, Moslems in their black veils—all are there. The wide-awake curiosity of the foreign tourists, secure on their platforms, contrasts with the quiet patience of the somber pilgrims huddled below.

Kavasses, resplendent in gold lace,

Photograph by Maynard Owen Williams

THE FINEST EXAMPLES OF HITTITE SCULPTURE

The discovery of this remarkable group at Carchemish, ancient capital of the Hittites, east of Aleppo, was Col. T. E. Lawrence's first famous work. The family life here shown is far different from the stiff and formal representations of the kings of the East that are found elsewhere. Two men, evidently kings, or possibly a king and an ally, are followed by three boys with whip tops and four girls playing with knuckle-bones, still a favorite game in Syria. A small boy, just learning to walk, leans on a staff and a woman, queen or nurse, follows with a baby in her arms. The pickman who unearthed this four-thousand-year-old group wore just such a web belt as is shown in the dolerite sculpture chiseled in stone so hard that modern tools can make little impression on it.

guide parties here and there, rapping with their silver-topped pikes on the marble pavement in order to make a way through the crowds. The Russian dragoman, a bluff figure in white serge and a jaunty cap, who might have stepped over the footlights from a Merry Widow chorus, comes in with a slender girl in a tailored suit, with a white hat and veil and ruby lips. She climbs a ladder above the heads of the crowd and secures a place of vantage on one of the platforms.

Gradually every place becomes filled. Down on the floor each pilgrim is clasping a bunch of 33 wax candles to his throbbing heart. Those candles, one for each year in the life of Christ, will be carried far back to the homeland and distributed as blessed mementoes among the less fortunate people who will never see the walls of Jerusalem. Every minute the situation becomes more tense.

The Armenian runners, strong giants, naked to the waist and wearing white caps, burst through the crowd and take their places near one of the two holes where the fire is to appear. A little later the Greek runners appear near their fire-hole—an ill-assorted lot in kaffiyehs and tarbooshes. When the fire appears, these men will fight their way out through that insane crowd and carry the fire, like Paul Revere's night-call, to the villages around Jerusalem.

Now the Moslem soldiers shove the crowds back on either side, forcing those on the outside into the dark aisles, compressing those near the sepulcher into a solid, but restless, mass of heads and shoulders. The Greek Patriarch, in the

Photograph by Maynard Owen Williams

A COSMOPOLITAN PICTURE FROM SYRIA

Among these students of the Syrian Protestant College on a tramp to the Dog River inscriptions, there are representatives of six races—Syrian, Egyptian, Turk, Armenian, Greek, and Jew. The inscriptions are those of Rameses the Great (1300 B. C.) and Esarhaddon, the Assyrian who carried his conquests to Egypt, in 670 B. C., along this narrow path between the Lebanon and the Mediterranean Sea. Note the pylon effect which frames the Egyptian inscription on the right.

midst of his magnificently gowned priests, parades around the sepulcher. Three times he circles the rotunda. As he passes the south fire-hole, the Armenian prelate joins him and they enter the sepulcher itself.

THE DELIRIUM OF UNQUESTIONING FAITH, HOPE, AND LOVE

The bells begin a noisy jangle. Shouts arise from the crowd: "Oh Jews, your feast is that of the devil; but ours is that of Christ, who has bought us with His blood. Therefore we are happy today and you, O Jews, are sad."

The noise of the bells increases. An air of excitement, more intense than hitherto, pervades the vast dome. From every balcony the people lean forward expectantly. All are gazing at those two black holes, one on each side of the sepulcher. The bells still further increase their noisy ringing and a great flame shoots out on each side of the tomb.

Chaos is let loose in an insane mob!

The runners catch the fire in large wads of cotton and fight their way out through a sea of hands, each clutching a bunch of candles. The soldiers are now submerged in the sea of humanity, all struggling for the first blessing of the holy fire. A Copt, carrying a burning mass of cotton, fights, shoves, burns his way through the crowd. He dashes inside the barred chapel and clangs the door shut. A thousand candles are already alight; flickering flames multiply all over the great floor; smoke and smell begin to rise from countless candles.

The lamps on the sepulcher itself are lighted. The dark recesses of the church have become caverns of flitting ghost flames. A bunch of candles has been let

Photograph by Maynard Owen Williams

A DAILY MEETING OF THE SYRIAN WOMEN'S CLUB AT A WAYSIDE WELL ON THE SAMARIA ROAD

The well not only furnishes drinking water for the near-by villages; it is the woman's forum and laundry. While the men gather at the market-place, their wives meet at the spring and discuss the topics of the day. This segregation of the sexes seems strange to Europeans, but the Syrians like it. Most of these women are Christians, but even Moslem peasant women seldom wear the veil.

down from the upper balcony and is drawn up to the point of the dome already smoky and hot. The Greek chapel has become a sea of fire. Still the bells ring wildly. The whole church is in flames and the very air quivers with the heat.

HUMAN CANDLESTICKS AROUND THE SEPULCHER

The holy fire disappears; the bells cease ringing. The crowds press toward the one entrance, where in former years so many have been crushed to death. The gray old church belches forth madmen, madmen bathing themselves in hot wax, scorching their hair and chests with the flickering candles. The Armenian procession has already cleared a path around the sepulcher and is majestically circling the sacred tomb. The tourists in the galleries light their candles to be carried back to Canterbury or Kokomo, Inverness or Cape Town, as souvenirs of a passion play in which thousands of misguided actors fill an heroic stage. This is the garden of Nero revised; a gigantic spectacle where Christians again become living candlesticks.

There is no comedy in such a display. To the ignorant, this is the fire from God Himself, sent down as a heavenly blessing.

Photograph by Maynard Owen Williams

ALL ROADS LEAD TO ANTIOCH

Much of the trade of northern Syria comes to a focus at the four-arched bridge across the Orontes at Antioch. The best of the roads leads to the right and is the metalled highway to Alexandretta. The road to the left leads to Seleucia, the ancient port of Antioch on the Mediterranean, now practically in ruins. This view is taken from Mount Silpius, at the foot of which the city is crowded.

The tired faces of the women as they crush the spluttering wax in their fevered hands, the triumphant look of the solemn pilgrims almost make one cry out in anger at the awful hoax. To these pilgrims, however, it is the El Dorado of countless dreams and years of toil and saving. To them it is real; they live it; they believe.

But climbing down from the platform, and showing incongruous silk hose and dainty slippers as she slowly descends, is our typical tourist. Her hat is awry. A triumphant smile is in her eyes. She is the picture of amused curiosity. In one hand she holds a bent and twisted candle. The painted flowers which once decorated it are now gone and its end is blackened with the holy fire. This is the irreverent side of the spectacle.

The honest-faced pilgrim clutches his candles to his breast and a look of "peace that passeth all understanding" covers his wrinkled face. Beside him is the amused sightseer, who draws aside her narrow skirts in passing. This is Jerusalem at Easter time.

The railway which formerly carried Christian tourists from Jaffa to Jerusalem had other significance than as a pilgrim line, but the unique railway of the Near East is the Hejaz Railway, which was built expressly for religious purposes and was stubbornly opposed by the desert Arabs because they feared it would rob them of a chance of robbing.

BEIRUT, THE HOME OF AN AMERICAN COLLEGE

Beirut is of great interest to Americans for it is in this city that the Syrian Protestant College is situated. This great institution ranks with Robert College, on the Bosporus, and these two American schools have had a tremendous leavening power throughout the Near East.

The complexity of the Near Eastern

Photograph by Maynard Owen Williams

WHERE CHRIST'S DISCIPLES WERE FIRST CALLED CHRISTIANS

Antioch, although the cradle of Gentile Christianity, was a gay and voluptuous city at the beginning of the Christian Era, as one may judge from reading "Ben Hur." Today it is important chiefly for its export of hundreds of tons of licorice for flavoring tobacco. The capture of pleasure-loving Antioch by the Persians under Sapor was a dramatic page in a theatrical history. According to the traditional account, while the favorite actress was entertaining the purple-clad citizens with all the seductive skill of the Oriental, a look of horror came to her painted face. Her bare white arm pointed to the mountainside behind the amphitheater, and as the spectators turned, the javelins of Sapor's hosts transfixed them in their seats. Like the dwellers in Herculaneum, disaster befell them at an instant when the pleasure of the flesh had banished from their fickle minds all thought of death.

situation was never borne in on me as strongly as when I taught a course in universal history in that cosmopolitan university of 1,100 students, representing a dozen races and a half dozen religions. When the class was studying Egyptian history, there were three or four Egyptian members who had devoted the best years of their early life to memorizing the feats of the Pharaohs. By the time the lesson turned to Greek history the eight or nine Greeks in the class saw this as their grand opportunity to dazzle the others with the splendor of the age of Pericles, and those who were interested in athletics introduced the name of the original Marathon runner in order to impress the non-Greeks and embarrass their teacher.

Mohammedan history divided the class into two factions, Christian and Moslem,

Photograph by Maynard Owen Williams

GENERAL VIEW OF ALEPPO, SYRIA'S FUTURE METROPOLIS, FROM THE CITADEL

This city, "the Chicago of the Near East," is the hub of the Afro-Eurasian land-mass and is fated to become one of the greatest trading centers of modern times, as it was centuries ago, when it was the western terminus of the famous Aleppo to Basra caravan route. Aleppo derives its name from the fact that Abraham stopped here to milk his goats while *en route* to the Promised Land, and Egyptian inscriptions testify to the fact that the city saw a longer history before the birth of Christ than it has since.

and, although the Christians were a unit when it came to showing how unimportant Mohammed was, when it came to a history of the Inquisition, several weeks later, this not only gave the Moslem students a chance to develop strange coughing fits, but divided the Christians themselves into factions of Greek, Gregorian, Abyssinian, and Protestant, not to mention Copt, Maronite, and infidel.

The striking fact about that heterogeneous class was not that they differed on details, but that they agreed on principles, and no one can say how much democracy a son of a Turkish pasha is getting until the son of a poor Armenian widow discusses with him the fall of Abdul Hamid. Beirut is the center of modern Arabic literature and liberalism, and the American college has had a wide-reaching effect on the thought life of Arabic-speaking lands.

ANOTHER STONE PAGE IN HISTORY'S RECORD BOOK

The cosmopolitan make-up of the student body at the Syrian Protestant College only serves to remind one that this part

of the coast has been traversed for many centuries by the peoples and armies of many nations.

A few miles north of Beirut, at the point where Dog River enters the sea, the foothills of the Lebanon come down to the very shore of the Mediterranean, and since soldiers and armies have always sought to travel on the level, whether they have fought that way or not, the passage of this point where sea and mountain meet was always a difficult feat.

One army after another cut its path along the towering cliffs, and when the passage of this narrow defile was thus insured, the commanders left the record of their passing. Who the first men were no one knows, for the troops of Napoleon III, in passing this point, were too lazy to turn over a new leaf; they simply inscribed their record on a limestone page from which the record of some ancient Egyptian had been erased by the hand of time.

But the first record that still stands was left by the armies of the most famous of the Pharaohs, Rameses the Great, when they were on their way northward to wage war against the Kheta or Hittites.

The great Assyrian, Ashurnasirpal, left his record here and his successors, Shalmaneser and Adadnirari, did the same. Then there was a lapse of more than a century, from 812 to 705 B. C., when Sennacherib and his son Esarhaddon had their names chiseled in this stone book of history.

WHERE AN ALIEN PRINCE OF MECCA LEARNED TO HANDLE MEN

Although the Egyptian records testify to the glory of the Hittites, it was not until a year before the outbreak of the World War that any orderly evidence about this people came to light. One of the two archeologists who found the key to the Hittite mysteries was T. E. Lawrence, now colonel in the English army, major-general of the Arab forces, champion of Arabian rights in Syria and alien Prince of Mecca.

The story of how a tow-headed, anemic youth, once forced by invalidism to leave the halls of Magdalen College, Oxford, and seek health in tramping through Syria, later won over the Arabs to the Allied cause and enabled General Allenby to win a decisive victory in Palestine, is replete with romance.

This brilliant and modest young scholar first won fame as an archeologist at Carchemish, where the Bagdad Railway bridges the Euphrates, and, in view of the success he has since attained in dealing with Orientals, it may be permissible to quote from my article about him and his colleague, Mr. C. Leonard Woolley, which was published in 1913.

"Both Woolley and Lawrence are disappointing archeologists. I expected to find gray-haired old men with spectacles and a scholarly stoop. Lawrence is apparently in his early twenties, a clean-cut blond with peaches-and-cream complexion which the dry heat of the Euphrates Valley seems powerless to spoil.

"He wore a wide-brimmed Panama, a soft white shirt open at the throat, an Oxford blazer bearing the Magdalen College emblem on the pocket, short white flannel 'knickers,' partly obscured by a Scotch decoration hanging from the belt, which did not, however, obscure his bare knees, below which he wore heavy gray hose and red Arab slippers.

"Woolley is also hopeless as an archeologist. He is young and friendly and as companionable as a college chum. Surely not the stuff of which archeologists are made.

"But I fancy these two young men are competent to hold down the Carchemish 'digs' for a while at least; for better than their years of excavating and their skill in using French, German, ancient and modern Greek, Turkish and Arabic, is their remarkable knowledge of men.

"I cannot give a correct estimate of their worth as archeologists, but I do say that they know more about handling Orientals than any man I have met during my two years in Syria."

ANCIENT RUINS AT A CROSS-ROADS OF FUTURE EMPIRE

Yet in the year that passed before I was again their guest, these two youths firmly established their claim to the title of archeologists of the first rank, and Lawrence's power to handle men has since proved the deciding factor in swinging the Arabs from loyalty to Turkey, as

the head of Mohammedanism, to the whole-hearted co-operation with Christian forces in the capture of Jerusalem and Damascus.

Carchemish in those spring days of 1914 was more interesting than we then realized; for there Britisher and German were working side by side, the one to establish another intellectual link with the past, the other to weld a new material link for a future empire.

But for the friendly intervention of the Kaiser, whose later disregard for the decencies of life wrecked his monstrous plans of world power, the Bagdad Railway would have furrowed its path through the incomparable treasures of Carchemish, and priceless examples of ancient art might have been ground to dust beneath the iron chariot of modern commerce.

But for the aid that Woolley and Lawrence gave to the German empire-builders when the rising Euphrates clutched jealously at the piles of the temporary bridge, their second structure would have been carried away by the flood as was their first.

Lawrence, who later aided in Germany's downfall, then succeeded in inducing the Kurds, Arabs, and Syrians, whom the Germans had offended, to return to their tasks and save the bridge, which was a thorn in the side of British pride and an important step in the challenging advance of Germany toward the coveted gates of India.

The excavators had built an unimposing but comfortable hut, the floor of which was of Roman mosaic that had been brought thither from a group of ruins several miles away. Lawrence and Woolley regarded Roman ruins as quite modern and common. They took much more pride in the unglazed Hittite cups, 4,000 years old, from which we sipped our Turkish coffee.

A KURDISH GLEE CLUB WITH COLLEGE TRIMMINGS

Our entertainer one evening was a Kurd singer. In order to reach the hut, I had walked for miles through the darkness of a thunderstorm, in the midst of which a flash of lightning showed me that I was standing on the brink of a test shaft 20 feet deep, and I was glad when I reached the cosy residence of the amiable excavators.

My friends welcomed me most heartily, and soon my football sweater, with its big orange K, took its place with the white blazer trimmed with red, worn by Lawrence, and Woolley's of bright green trimmed with white. It was, if one overlooked the Kurdish musicians huddled at the far end of the room, a most "collegey"-looking group. The air was thick with smoke from Hogarth's pipe and Woolley's cigar, and the wind outside could whistle chilling tunes without detracting from the cosiness of the low room with its dark, rich hangings.

The grizzled Kurd who was to sing sat quietly awaiting his turn, in his deep-set eyes a far-away look, and with his shepherd's pipe across his lap. Beside him was a Kurd who could well pose as a model man of the desert—swarthy of skin and clear of eye, his thin lips compressed to a narrow line, his sun scarf draped gracefully around his head and neck.

MUD WALLS OBLITERATED BY THE POWER OF SONG

The accompanist had a peculiar musical instrument, whose counterpart can be seen in the Hittite carvings of three thousand years ago. Perhaps the skill of a hundred generations animated his fingers. Certainly it was no modern music that came from the mandolin-like affair with the long neck and the small body. It was a spirit of the ancient days returned to play for the men who had rediscovered the site of the brilliant Hittite capital.

Hogarth rapped the ashes from his pipe and threw his leg over the arm of the easy chair. Lawrence, the blond Oxonian, curled down into the throne-like seat, in which his white suit stood out from the soft-toned background of a Persian rug. Woolley motioned the musicians to begin. The accompaniment seemed to be the echo of the winds that swept across the Euphrates and moaned as they passed on across the city of ruins.

But it was something different when the old singer blew a few notes on his pipe. The windy wastes were now in-

Photograph by Maynard Owen Williams

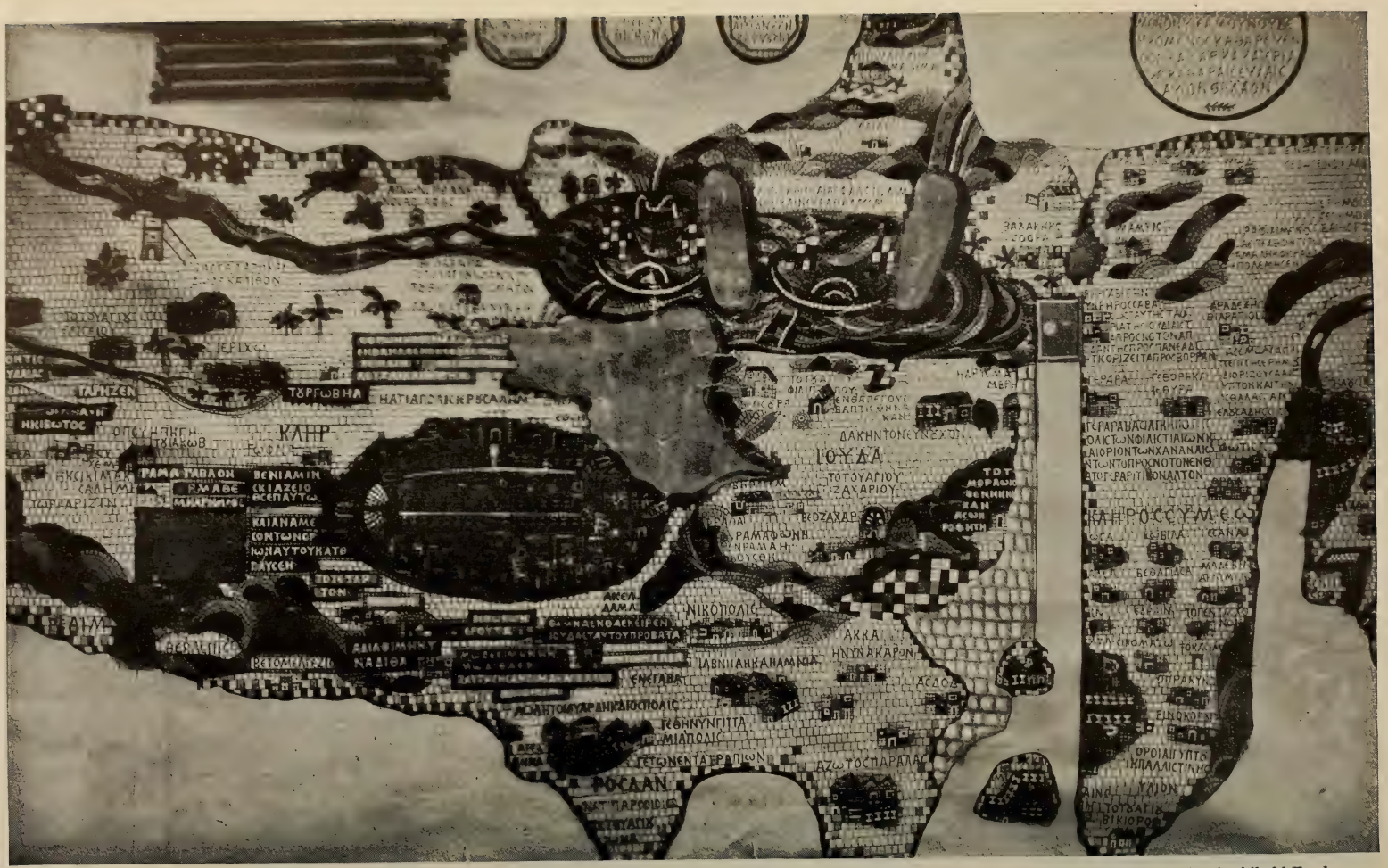
A NOONDAY SIESTA AMID HISTORIC PETRA'S TEMPLED HILLS: THE PHOTOGRAPH WAS TAKEN FROM THE ROOF OF THE ANCIENT BUILDING KNOWN AS THE DEIR

This is not a victory emblem on the forward turret of the latest battle cruiser, but a studied pose of eight missionary teachers on the ground in front of one of Petra's most famous rock temples. The distance to the ground is 130 feet and the whole structure is really a part of the sandstone hill from which its face was carved. The florid façade is as deceptive as the false front of a boom-town emporium, for the plain interior is less than forty feet square.

habited. The spirit of man animated the scene with the sad, shrill cry of a creature in pain. The figures of the room were blotted out. This was no concert music, designed for bright lights and well-dressed audiences. A soul was stirring in that flute, an out-of-door spirit communing with its God across vast distances, but with a sense of sympathetic nearness.

He began to sing. I started at the first note. It was a protest against the wrongs of the Angel of Death, a plea for mercy at the hands of a determined despot. Each note was wrung from the heart of a despondent soul, fearing, pleading, crying out for a relief that would never come.

The eyes of the singer were fixed; the cords of his throat were visible under his swarthy skin. The veins of his forehead stood out under his dark kaffiyeh, and with each line he seemed to swallow, to choke



Photograph by Archibald Forder

AN ANCIENT IDEA OF PICTORIAL GEOGRAPHY: THE MADEBA MOSAIC MAP

This is the oldest map of Palestine in existence. The dark oval represents the city of Jerusalem. Instead of burdening the student of geography with pink and green blotches representing political units, the maker of this mosaic map tried to show the country pictorially. Bridges, fishes, men, and animals are depicted, as well as mountains, rivers, and cities.

Photographs by Maynard Owen Williams

TAKING A PICTURE OF THE MADEBA MAP

The church in which this earliest of Palestinian maps is housed was built on the site of a fifth or sixth century edifice. An American archeologist missed the honor of discovering this wonderful mosaic by barely three inches; he was diverted by other important finds superimposed upon the map

THE MOST FAMOUS OF THE CEDARS OF LEBANON

This stately tree has been reproduced in the seal of the Syrian Protestant College at Beirut, an American university with more than a thousand students. Although there are great groves of these trees in the Taurus Mountains, only about four hundred specimens remain on the Lebanon heights.

back a sob that was springing to his lips. For some time I could not turn my head. I had forgotten the others. I could not understand the words of the singer, but the music wrenched my heart. I turned to Woolley and asked what the man was singing. It was the lament of a Kurdish woman whose husband, Said Ahmed, the greatest of warriors, had been brought home dead. I understood the sorrow of the song, its harrowing complaint against an unkind Fate.

REVENGE SET TO KURDISH MUSIC

Then, in an instant, the music changed. The notes were the same; the rhythm was unaltered. The singer was as still as if he were carved out of rock, but the soul-stirring complaint of the bereaved wife at the death of her loved one was changing to the cunning, low, tense song of a Jael at the side of Sisera. Revenge was taking the place of despair. Hatred was blotting out womanly love. The funeral chant was fast becoming a battle-song, in which the hatred of a race was stirring murder in the hearts of her hearers. This woman, after kneeling by the side of her husband's dead body, had raised herself to a proud height, and with outflung arms like Davidson's "France" was praying that his tribe would avenge her husband's death. A Fury, with ghastly face and disordered hair, was hurling Death back upon itself, was already sucking sweetness from the thought of pillage and bloodshed. A note of victory crept into the awful chant. Then Deborah's song of conquest and thankfulness burst forth—cruel, menacing, exultant.

In a moment it was over. Only the shrill sound of the pipes remained. The woman, having seen her tribe depart on its mission of revenge, was once more at the side of her loved one, whose cold lips would not respond to her long, passionate kiss.

WHERE THE BAGDAD RAILWAY CROSSES THE MESOPOTAMIAN RUBICON

Just south of the Hittite ruins at Carchemish the Bagdad Railway crosses the muddy Euphrates and enters Mesopotamia. For the present the line to Bagdad and the Persian Gulf will monopolize the attention of the road-builders; but slowly and surely the iron pathways of commerce will extend north to the copper fields of Asia Minor and the rich plains where Turkish tobacco is grown, up through Armenia to the Caucasus, across Persia to Turkestan, and across Afghanistan or Baluchistan to the gates of India.

Through communication with central Asia may rob the wharf at Beirut of many colorful groups of Mecca pilgrims from both Turkestans, and soon even the Peking Mohammedan may take a pilgrimage to Mecca by rail; but this improvement of communication will induce stability and make less likely another destructive migration by the free-ranging Central Asian nomads, who are an anachronism in a crowded world.

War may not be entirely a thing of the past, but the Syrian and Mesopotamian routes are essential to the commercial and industrial development of Europe and the cultural development of Asia. While wars may come and while Syria is sure to be deeply affected by every conflict in which European or Asiatic nations are involved, the downfall of Turkish control in this region is likely to do away with such disastrous street fighting as has for centuries discouraged traffic along the world's greatest historic highway.

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The National Geographic Society's New Map of Europe, which has been in preparation for two years, will be issued as a supplement to the NATIONAL GEOGRAPHIC MAGAZINE immediately following the official announcement of the boundaries of the new nations created by the Paris Peace Conference. As any map issued prior to this official announcement must necessarily be of only temporary worth, the Society has deferred the publication of its map in order that its members may have a work both authoritative and of permanent value. The map, in colors, and drawn on a generous scale, will show the boundaries of the nations as they existed before the World War as well as the new boundaries now being established by the Peace Commissioners.

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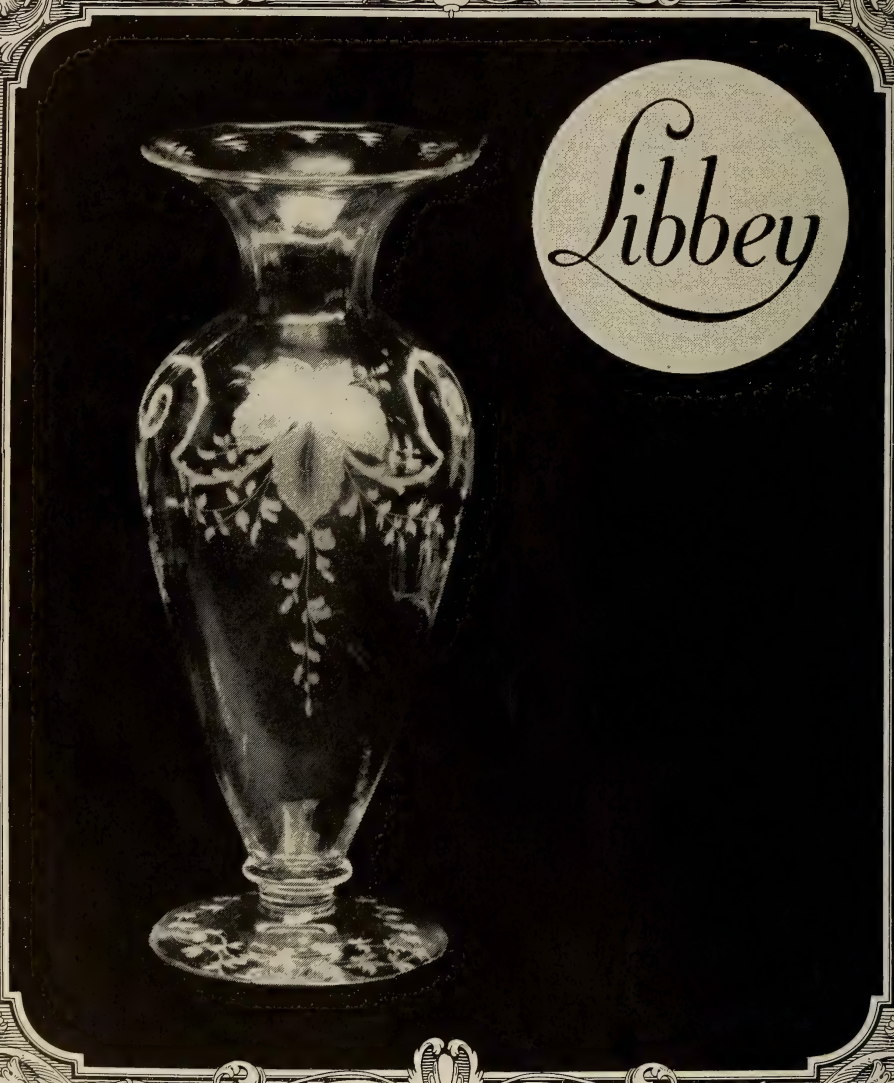

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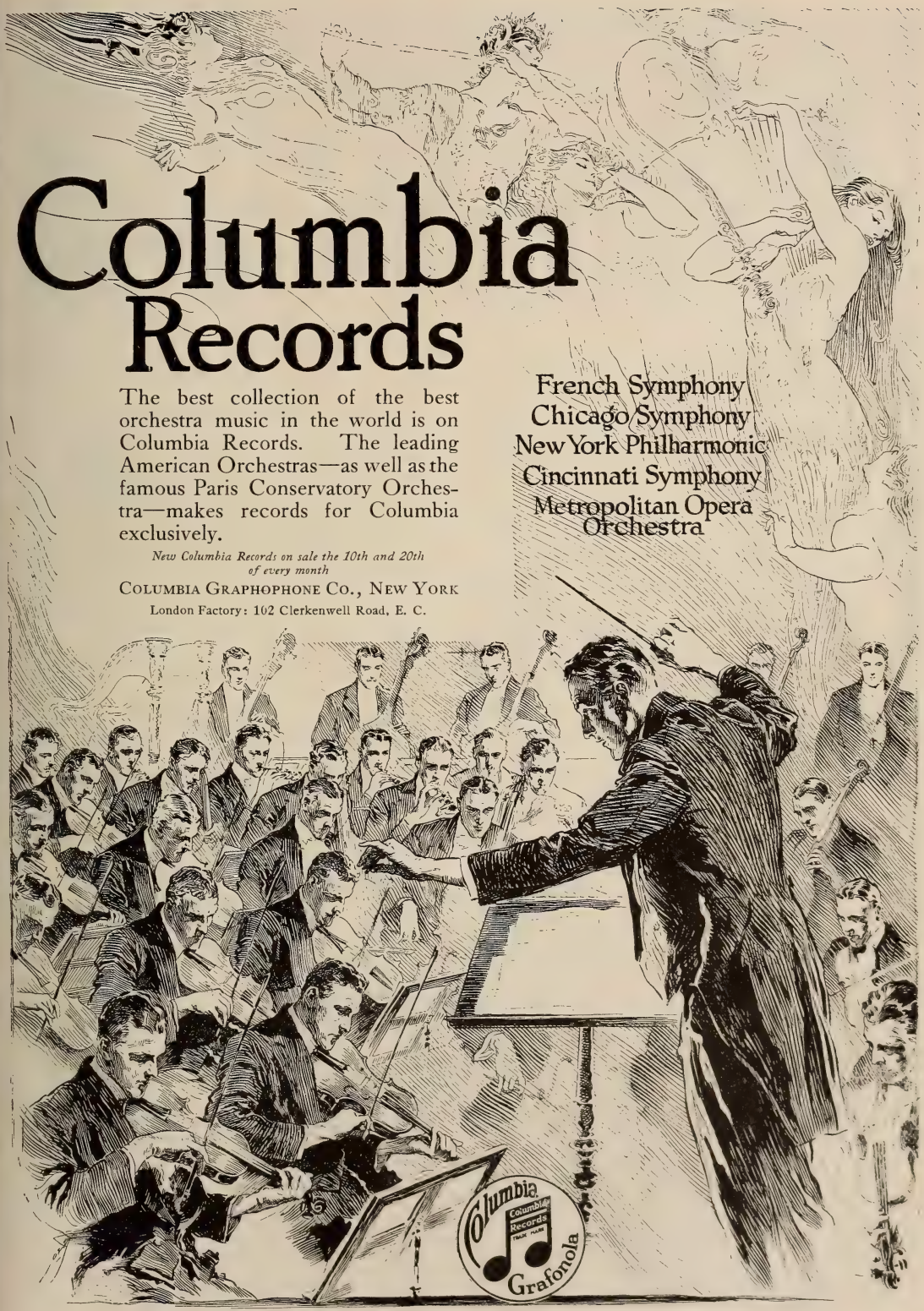
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Quality alone would make Camels distinctive. But, behind quality is Camels expert blend of choice Turkish and choice Domestic tobaccos. *This blend is a revelation to cigarette smokers!* You'll prefer it to either kind of tobacco smoked straight, it is so mellow, so delightful.

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18 cents a package

Camels are sold everywhere in scientifically sealed packages of 20 cigarettes; or ten packages (200 cigarettes) in a glassine-paper-covered carton. We strongly recommend this carton for the home or office supply or when you travel.

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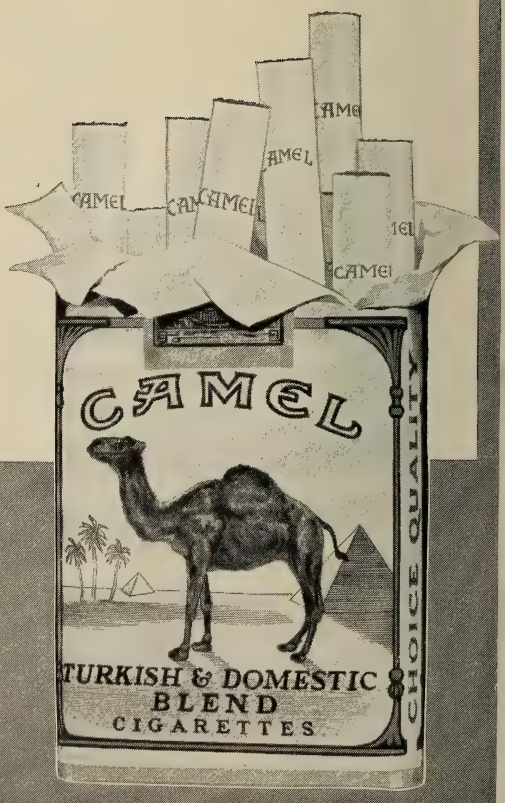

Why That Stain

On Teeth Brushed Daily?

All Statements Approved by High Dental Authorities

It is in the Film

Millions find that stain and tartar form on teeth brushed daily. Teeth decay, pyorrhea starts, despite the constant cleaning.

The reason lies in a slimy film. You can feel it with your tongue. It clings to the teeth, gets between the teeth, enters crevices and stays. The tooth-brush doesn't end it. The ordinary dentifrice cannot dissolve it. And dental science knows that film is the cause of most tooth troubles.

The film is what discolors, not the teeth. It is the basis of tartar. It holds food substance which ferments and forms acid. It holds the acid in contact with the teeth to cause decay. Millions of germs breed in it. They, with tartar, are the chief cause of pyorrhea. Also of countless troubles, local and internal.

Dental science, after years of research, has found a film combatant. Clinical tests have amply proved its efficiency. Also years of laboratory tests. Now leading dentists all over America urge its universal use.

It is embodied for home uses in a dentifrice called Pepsodent. And a 10-Day Tube for testing is sent free to all who ask.

Watch the Film Go

Ask us for this 10-Day Tube. Use like any tooth paste. Note how clean the teeth feel after using. Mark the absence of the slimy film. See how the teeth whiten as the fixed film disappears. Let your own teeth show you what this method means. Pepsodent is based on pepsin, the digestant of albumin. The film is albuminous matter. The object of Pepsodent is to dissolve it, then to constantly combat it.

A new invention has made pepsin possible. It must be activated, and the usual method is an acid harmful to the teeth. So pepsin long seemed forbidden. Now science has supplied a harmless activating method. Now active pepsin, as employed in Pepsodent, can be applied twice a day to that film. That fact opens up a new era in teeth cleaning, and we ask you to learn what it means.

Pepsodent PAT. OFF.
REG. U. S.

The New-Day Dentifrice

A Scientific Product—Sold by Druggists Everywhere

Send the Coupon for a 10-Day Tube

Cut it out now so you won't forget. Compare this tooth paste with the kind you use, then judge for yourself what is best. (255)

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We — who have had the opportuntity to observe his work, and know how consistently he, as an individual and as a body, has stood for the highest ideals in its administration, hereby inscribe our appeciation of it, in the hope that it may lead to a better recognition, on the part of the public, of the service he renders.

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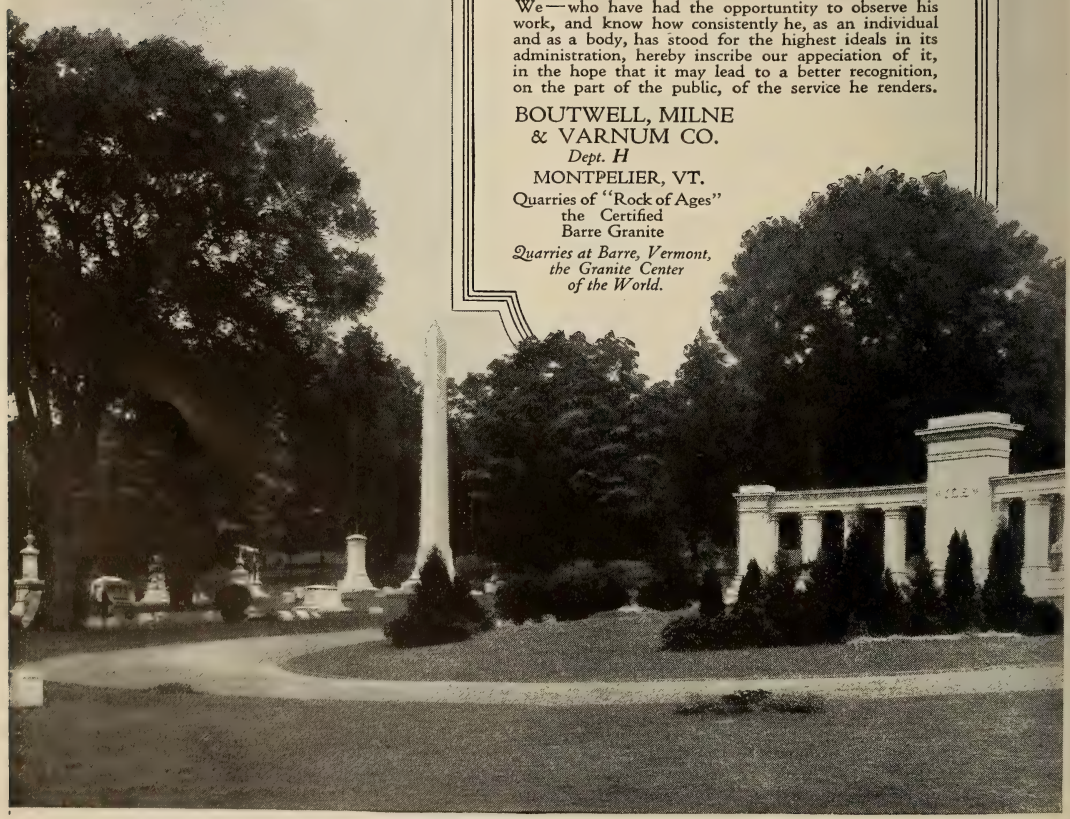
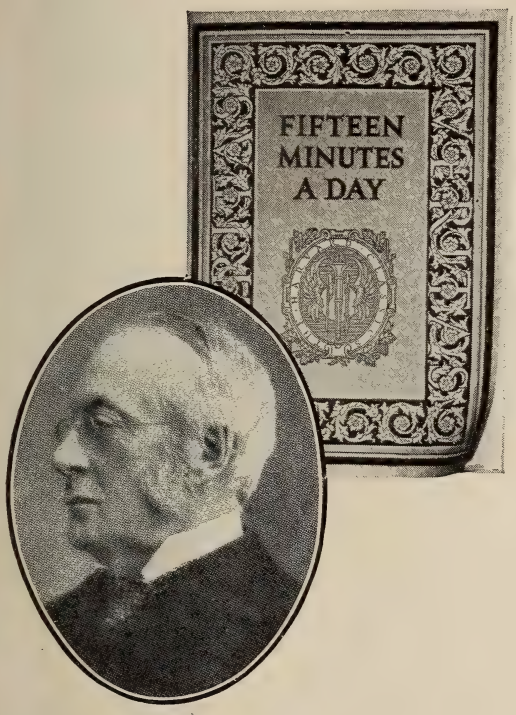


Your reading problem solved by Dr. Eliot of Harvard



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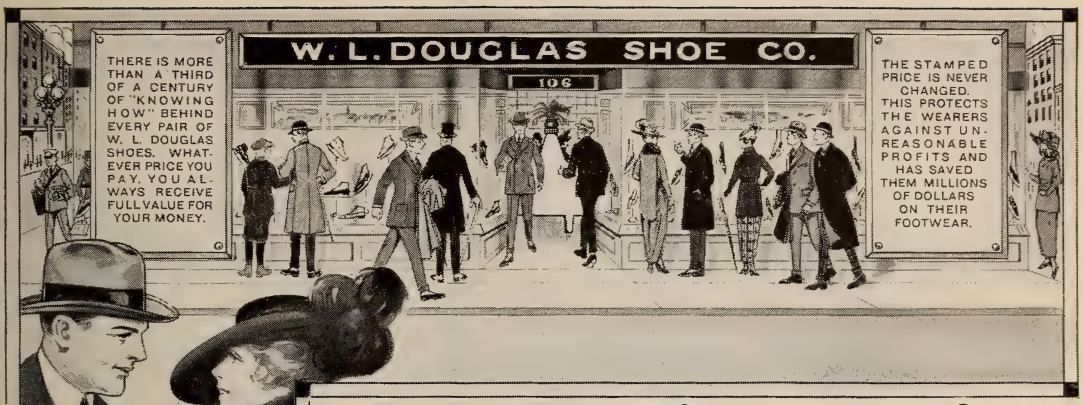
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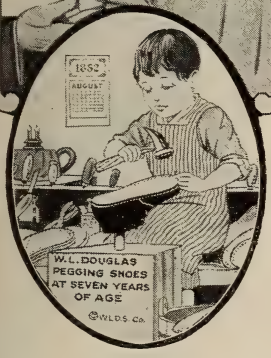

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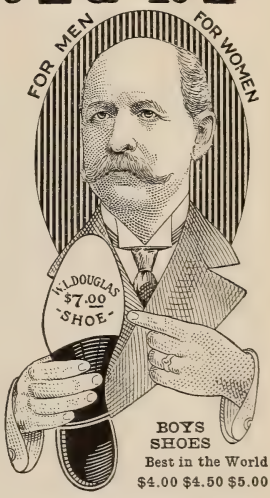

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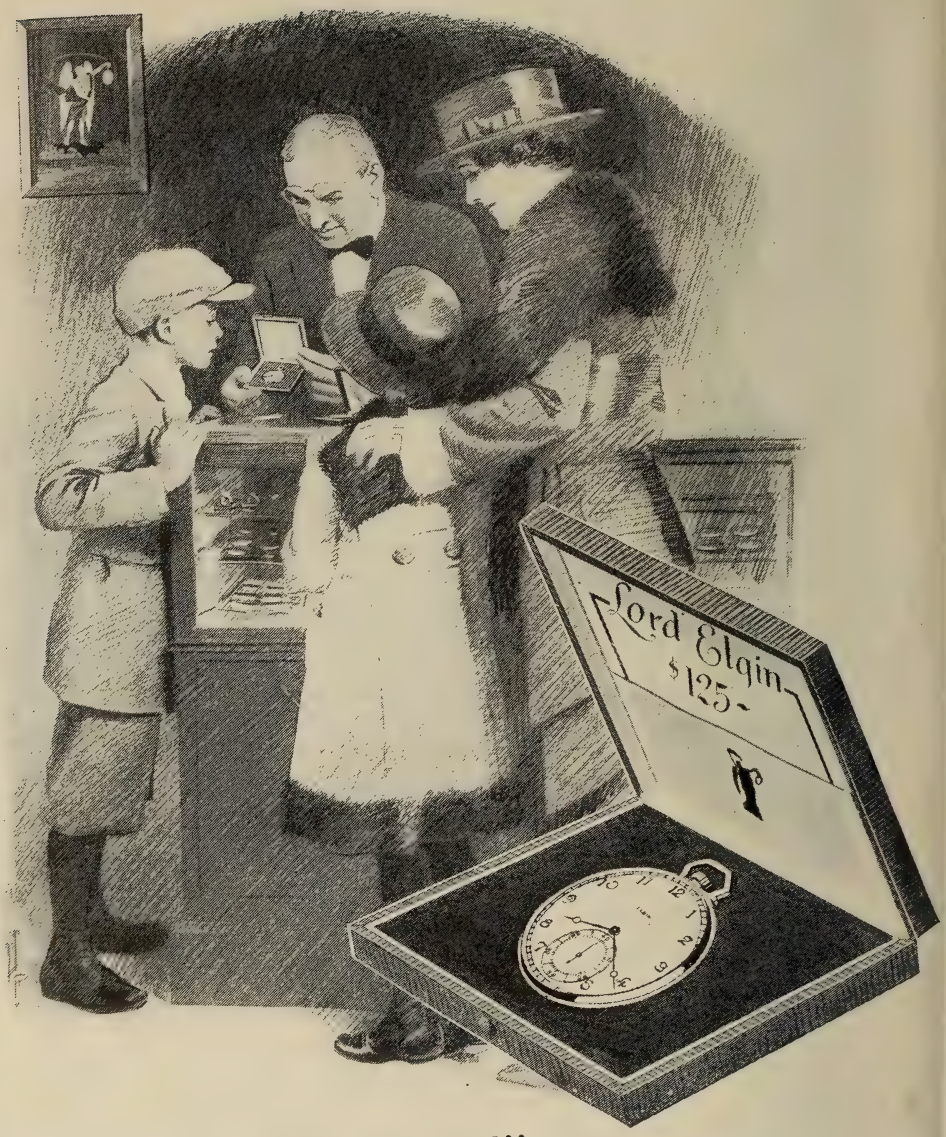

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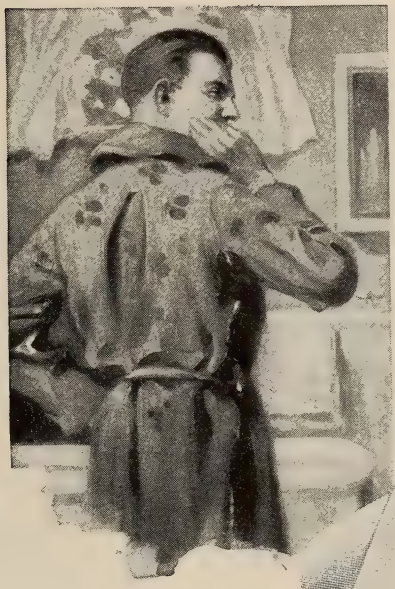

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AND every Colgate shave is so smooth and comfortable that it is worth saving the 50 extra shaves you get by unscrewing the last ½ inch of soap from the "Handy Grip" and sticking on your "Refill."

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Just as easy as putting a new electric light bulb in its socket.

Saves the cost of a new metal box. We make Sticks, Powders and Creams, and can give the impartial advice that the Stick is the most economical.

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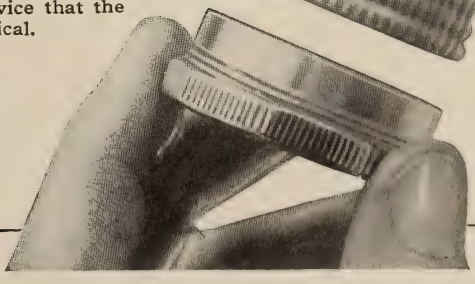

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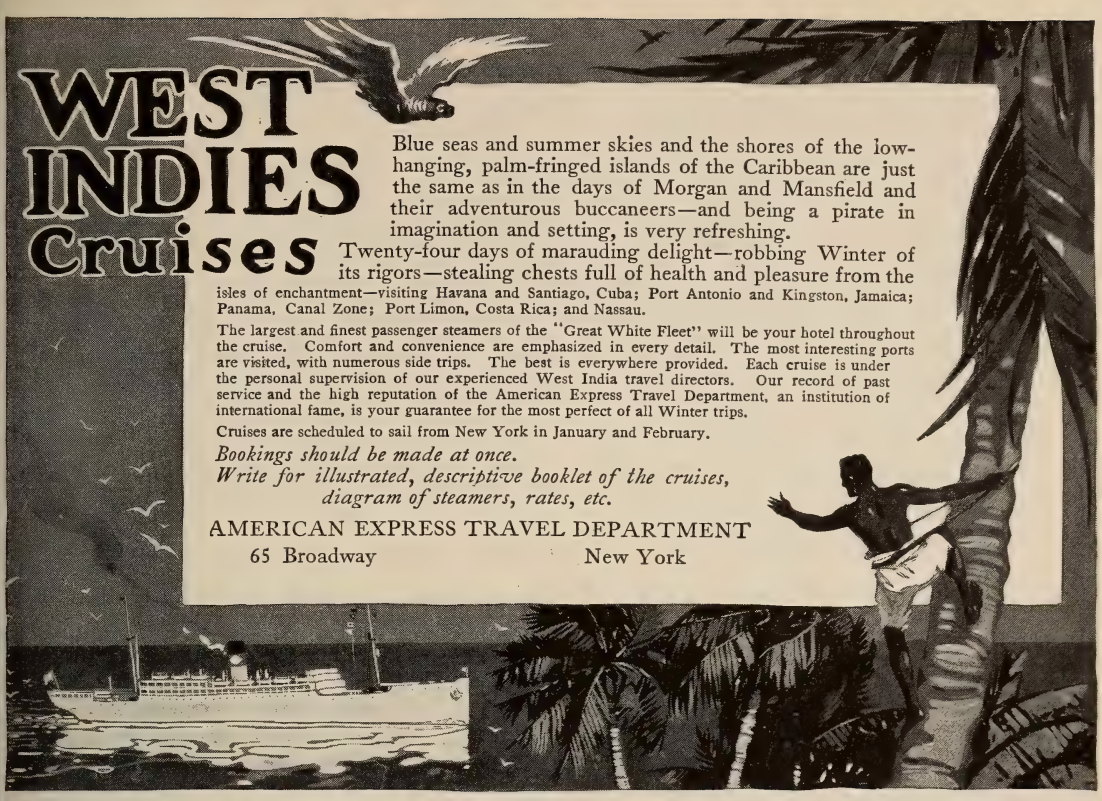

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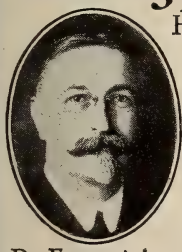

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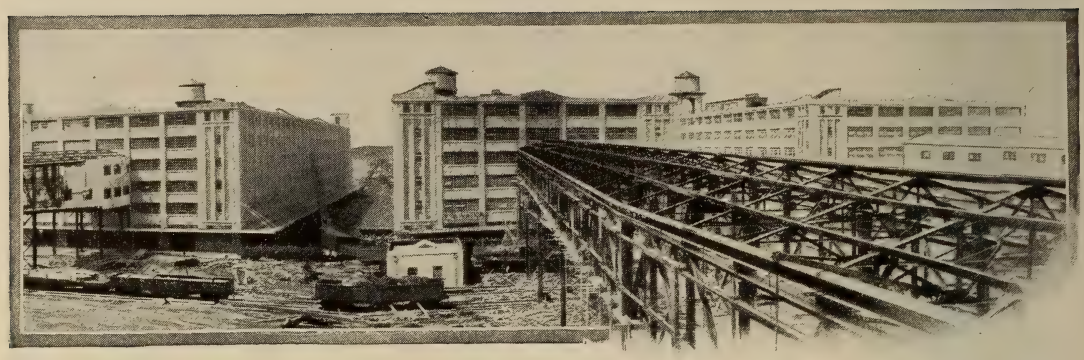

"Fuller-Built Landmarks"

In The Service of Industry

The warehouses and wharves here pictured which were recently completed at New Orleans for the U. S. Army indicate the facilities of the company for handling certain phases of this industrial work. The plant consists of three 6-story reinforced concrete warehouse units 600 ft. long and 140 ft. wide and a 2-story steel and pile wharf and warehouse, 2,000 ft. long, connected with the warehouse units by three structural steel bridges.

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Wisconsin Telephone Company Bldg., Milwaukee, Wis.
Johnston Candy Factory, Milwaukee, Wis.
Grain Elevator, Port Arthur, Canada
T. Eaton Company Bldg., Moncton, New Brunswick
Kipawa Co. Pulp, Paper & Sulphite Plant, Timiskaming, Canada
Pennsylvania Terminal additions, Steubenville, Ohio
Railroad Tracks, Pennsylvania R. R., Long Island, N. Y.
Car Shop, Pennsylvania Railroad, Terre Haute, Ind.
Housing U. S. Housing Corporation, Washington, D. C.
12—9600 ton ships, Wilmington, N. C.
Republic Iron & Steel Company Bldg., Youngstown, Ohio

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In the winter of 1918, metal weather strips were credited with saving from waste, two million tons of coal (40,000 car-loads) which fact led the United States Government Fuel Administration to publicly state that "Weather Strips are 100% fuel conservation."

Every house-owner or building manager must now realize the importance of the weather-strip industry—must understand that any unprotected window continually wastes fuel by allowing heat to escape, and should be anxious to mitigate the coal shortage, that is staring the country in the face, by installing metal weather strips to save his share of the two million tons of coal that they save the Nation annually.

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Monarch Metal Weather Strips hermetically seal windows, doors, or any opening—yet provide a slipping, sliding surface that allows easy and noiseless operation. Made in two tubular strips—one acting as a curved track for the other—they make a leak-proof cushion between the sash and frame that gives and takes with every movement of the window, yet seals the gap securely and permanently. "Monarch Outstrips 'Em All" because the two-piece, tubular design is exclusively owned by the Monarch Company.

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Manufacturers also of Casement Window Hardware

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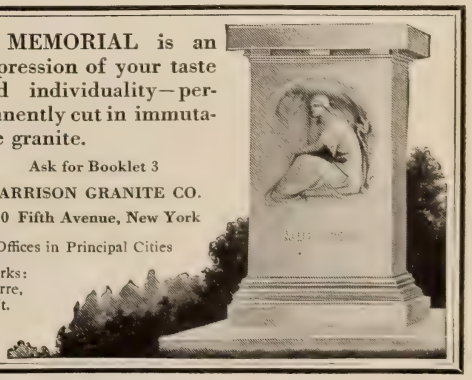

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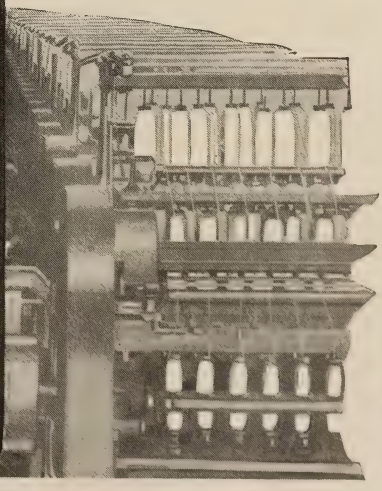

SparOak in a Cotton Mill

SparOak Belting is seen in this picture operating on spinning frame drives in one of the largest cotton mills in the world. SparOak's flexibility, pulley gripping power, and endurance have made it the standard for work of this kind. SparOak with its permanent elasticity and tensile strength will pull its load at top speed for years with a minimum number of stops.

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Year after year the universities include the trip to Dodge shops in their courses—because in Dodge shops, deeply imbedded in Dodge products they see the physical demonstration of those very principles of correct engineering practice that they have learned in the textbooks of Kent, Cambria and Suplee.

No matter under which of the 20 industrial classifications your business may be listed, Dodge has the experience and the ability to advise with you on new additions or regarding the change of manufacture from one product to another.

There is no charge for this service. And you will find a Dodge Engineer in each of our 13 Branches, whose knowledge of your power transmission problems may mean not only a vast saving to you but increased production on a more profitable basis than you now enjoy.

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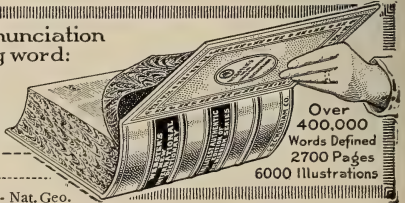

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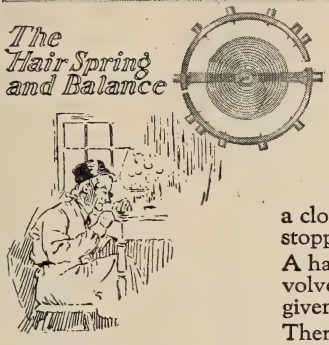

The Riverside

The most dependable moderate price watch in the world

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Know "the Works" of the Watch You Buy

THE hairspring upon the balance wheel of a watch is similar in function to the effect of gravity upon a pendulum in a clock. A pendulum swings so far to the left or right and is stopped and swung back to the point of impulse by gravity.

A hairspring retards the balance wheel of a watch and revolves it back to the point of impulse, which impulse is given by the escapement.

Therefore, as the hairspring controls the speed and arc of vibration of the balance, or its resultant, time, it is of the utmost importance to the time-keeping quality of the movement that the balance and hairspring be mated in perfect ratio as to the weight of the balance and the proper relation of that weight to the center of gravity and the strength of the spring.

To determine this absolute ratio, John Logan, a famous Waltham horologist, invented a vibratory machine (illustrated above) which so accurately mates the Waltham balance wheel and the hairspring, so perfectly selects the right hairspring for the particular balance wheel, that when finally assembled in the watch the watch is a natural time-keeper. This is one reason why the Waltham watch is famous for its close and constant time-rate.

The foreign watch balance and hairspring are of varying construction. They are made by hand—one at a time—therefore it is impossible even for a skilled watchmaker to determine the ratio weight of the balance to the strength of the hairspring.

Its determination is by the uncertain rule of thumb method in trying various hairsprings until one is found which approximately performs its function.

This is yet another reason why the Waltham watch, due to standardized exclusive machinery, standardized material, absolute measurements and known ratios, is the watch you should insist upon buying—

And why the world's leading horologists came to Waltham for time.

This story is continued in a beautiful booklet in which you will find a liberal watch education. Sent free upon request. Waltham Watch Company, Waltham, Mass.

WALTHAM

THE WORLD'S WATCH OVER TIME

"Mention The Geographic—It identifies you"

THE REASON WHY MAGAZINES PUBLISHED IN NEW YORK CITY WILL BE LATE

DIFFERENCES between certain local unions and their international unions have closed every magazine printing establishment in New York City. Some of the local unions have retained their membership in their international union, while the pressmen, feeders, and paper handlers have seceded and struck. These local unions demand a 32½ to 44-hour week and an increase of $14 per week, with double and triple pay for overtime, to take effect immediately. The international unions contend that the men should return to work and the entire matter be left to arbitration.

The publishers of the magazines meanwhile must suspend publication until the unions fight out their differences. This means that *Collier's Weekly, McClure's, Pictorial Review, Cosmopolitan, Hearst's Magazine, Harper's Bazar, Good Housekeeping, Harper's Magazine, Metropolitan, Scribner's Magazine, Century, Munsey's, Popular, Delineator, Everybody's Magazine, McCall's, Popular Science Monthly, Vogue, Vanity Fair, Motion Picture Magazine,* and 152 others, as well as many of the largest trade papers in the country, will not appear on time as usual.

Some of the publishers are making plans to remove their plants from New York to other places, and many Western cities are bidding vigorously to induce these publishers to consider their particular localities. Three very large publications have already completed plans for permanent removal, and their printing machinery and paper supply are now being shipped to Chicago.

The millions of readers of the publications affected by the strike are requested to be patient and to refrain from writing the publishers concerning delays in receipt of magazines. It will be only a question of a short time until the presses will again be running.

(Signed) **Periodical Publishers' Association of America.**

NEW YORK CITY, *October 10, 1919.*

I DO THE WORLD'S WORK

I work for Kings and Queens.

I work for the President of the United States.

I work for the Authors who play upon your heartstrings at will.

I work for the Clergymen who thrill you with their eloquence.

I work for Big Business Executives—I help to extend trade to every quarter of the Globe.

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A New World Fairy Tale

THE story begins in a little Old World village with an apprentice lad listening to tales told by his elders, in the long evenings after work. As they talked, he learned of a world outside his village, and there came a sudden, half-fearful resolution to break the fetters of his narrow life, and try his fortune in a land of shining opportunity. And so the lad set forth, in his nineteenth year.

* * *

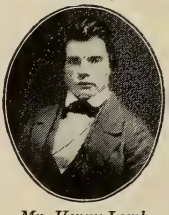
Forty-nine days crossing the stormy Atlantic in a sailing vessel; berths of rough boards; food cooked by the passengers themselves—thus in 1849 John J. Bausch came to America—the land of his dreams. Followed disillusionment, almost complete. An epidemic of cholera in Buffalo; no work to be had; a bare existence as cook's helper and porter in a hotel; then a wood-turner in Rochester, at a dollar a day. And then a venture in his chosen field, the optical business—and utter, disastrous failure and a return to wood turning; and even an accident which threatened his livelihood. And the vision grew dim at times—but still it lived; and again an optical business was attempted, this time in his own house.

Mr. J. J. Bausch at 24 years of age

Henry Lomb joined him, and every hour was busy—yet when Henry Lomb enlisted for the Civil War, their debts just equalled their resources. And this was the net of eight years' work.

* * *

But then, slowly, almost imperceptibly, the tide turned. Under the spur of their constant striving for broader knowledge and higher standards, the partners and their sons built up a unique and lasting tradition of science and craftsmanship. Mr. Bausch designed and built the first power lens-grinding machine in America; and gradually other machines and processes were developed, scientific studies undertaken, and new products added to the already well-known eyeglass and spectacle lenses. It took many more years of patient, constructive effort, but success came at last. Exceeding all dreams of the pioneer, the great Bausch & Lomb factory stands as visible evidence of this success.



Mr. Henry Lomb at 26 years of age

The best measure is found in the real respect accorded Bausch & Lomb products, wherever science carries on its researches, and wherever imperfect or suffering eyes need aid. The vision of the founders still lives to guide us into pathways of ever broader usefulness.

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PRINCE ALBERT

the national joy smoke

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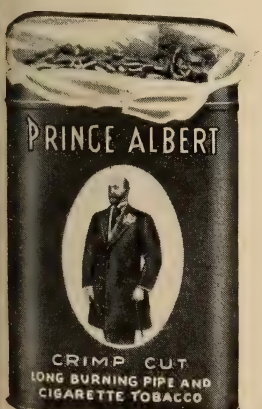
Tobacco Co.

P. A. has such a joy'us way of making men glad about jimmy pipes!

Awaiting your say-so, you'll find toppy red bags, tidy red tins, handsome pound and half pound tin humidors—and—that classy, practical pound crystal glass humidor with sponge moistener top that keeps Prince Albert in such perfect condition!



To shoot it quick:—Prince Albert turns over a new leaf in your smoke-career! Shovels smokesorrows right out the attic airshaft and throws wide open the smoke-section-shutters! Talk about letting in a flood of smokesunshine! Bet your pet luckystone that the best you ever heard tell about can't hold a candle *with what Prince Albert will hand you* seven days out of every week! And, then, some-on-the-side!

Smoking Prince Albert is just about twins with having the top time of your life on each fire-up! *It gives you a new idea of how delightful a jimmy pipe or a home-rolled cigarette can be!* Such flavor and fragrance and coolness; such freedom from bite and parch! Prove out personally that Prince Albert's exclusive patented process *really does cut out bite and parch!*

Talk about ringing the bell every time you take *just one more little smoke!* You'll agree with your old fellow citizen, General Approval, that Prince Albert puts a man on the firing line with a pipe or cigarette, *and keeps him there;* that it sends all previous smoke setto records to the rear-ranks; that it just slams in one good time on top of another so fast, so happy-like, you realize that heretofore you've been hunting regular-man-sport with the wrong ammunition!

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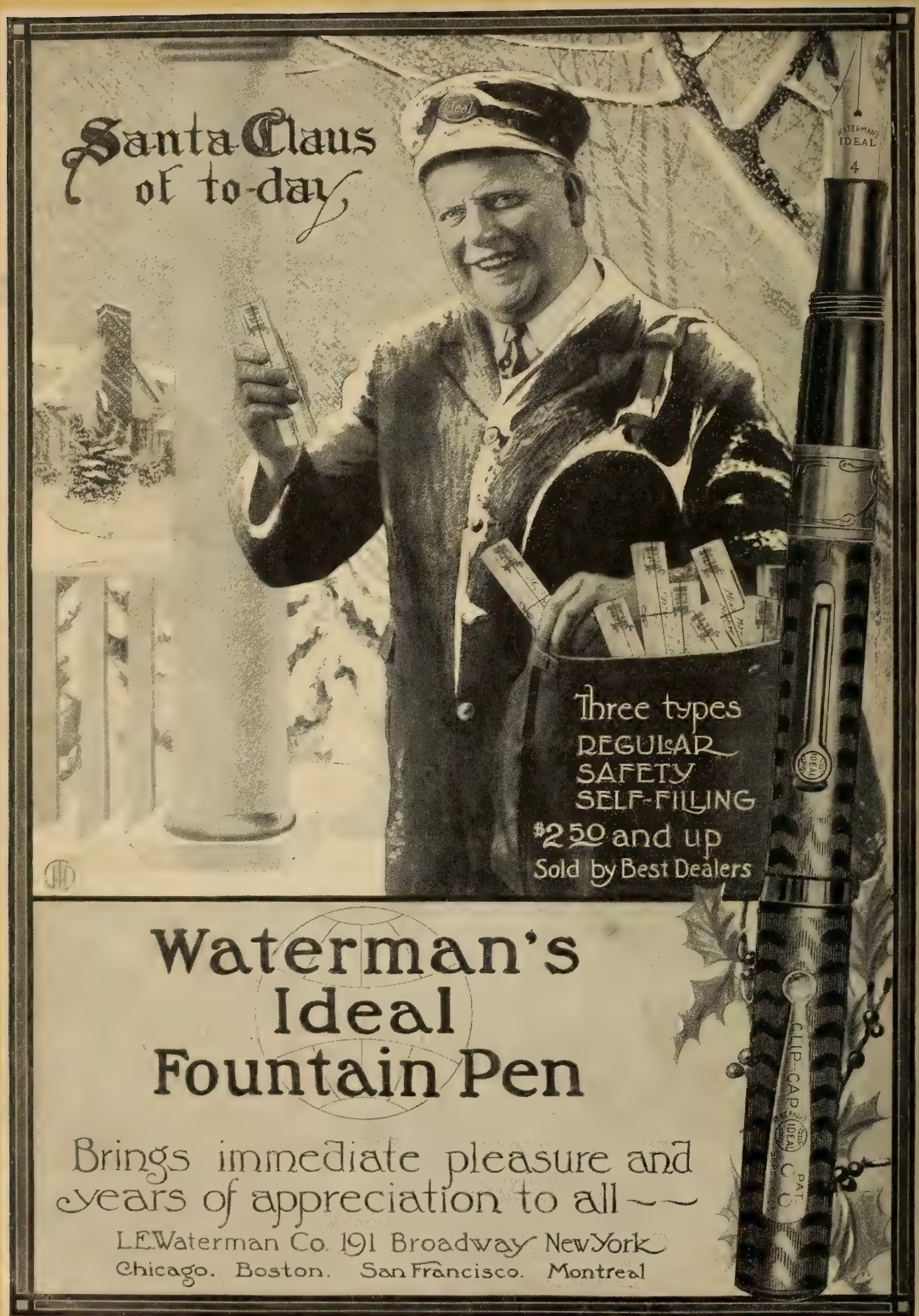

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VOLUME XXXVI NUMBER SIX

THE NATIONAL GEOGRAPHIC MAGAZINE

DECEMBER, 1919

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To carry out the purpose for which it was founded thirty-one years ago, the National Geographic Society publishes this Magazine. All receipts from the publication are invested in the Magazine itself or expended directly to promote geographic knowledge and the study of geography. Articles or photographs from members of the Society, or other friends, are desired. For material that the Magazine can use, generous remuneration is made. Contributions should be accompanied by an addressed return envelope and postage, and be addressed: Editor, National Geographic Magazine, 16th and M Streets, Washington, D. C.

Important contributions to geographic science are constantly being made through expeditions financed by funds set aside from the Society's income. For example, immediately after the terrific eruption of the world's largest crater, Mt. Katmai, in Alaska, a National Geographic Society expedition was sent to make observations of this remarkable phenomenon. So important was the completion of this work considered that four expeditions have followed and the extraordinary scientific data resultant given to the world. In this vicinity an eighth wonder of the world was discovered and explored—"The Valley of Ten Thousand Smokes," a vast area of steaming, spouting fissures, evidently formed by nature as a huge safety-valve for erupting Katmai. By proclamation of the President of the United States, this area has been created a National Monument. The Society organized and supported a large party, which made a three-year study of Alaskan glacial fields, the most remarkable in existence. At an expense of over $50,000 it has sent a notable series of expeditions into Peru to investigate the traces of the Inca race. The discoveries of these expeditions form a large share of the world's knowledge of a civilization which was waning when Pizarro first set foot in Peru. Trained geologists were sent to Mt. Pelee, La Soufriere, and Messina following the eruptions and earthquakes. The Society also had the honor of subscribing a substantial sum to the historic expedition of Admiral Peary, who discovered the North Pole April 6, 1909. Not long ago the Society granted $20,000 to the Federal Government when the congressional appropriation for the purchase was insufficient, and the finest of the giant sequoia trees of California were thereby saved for the American people and incorporated into a National Park.

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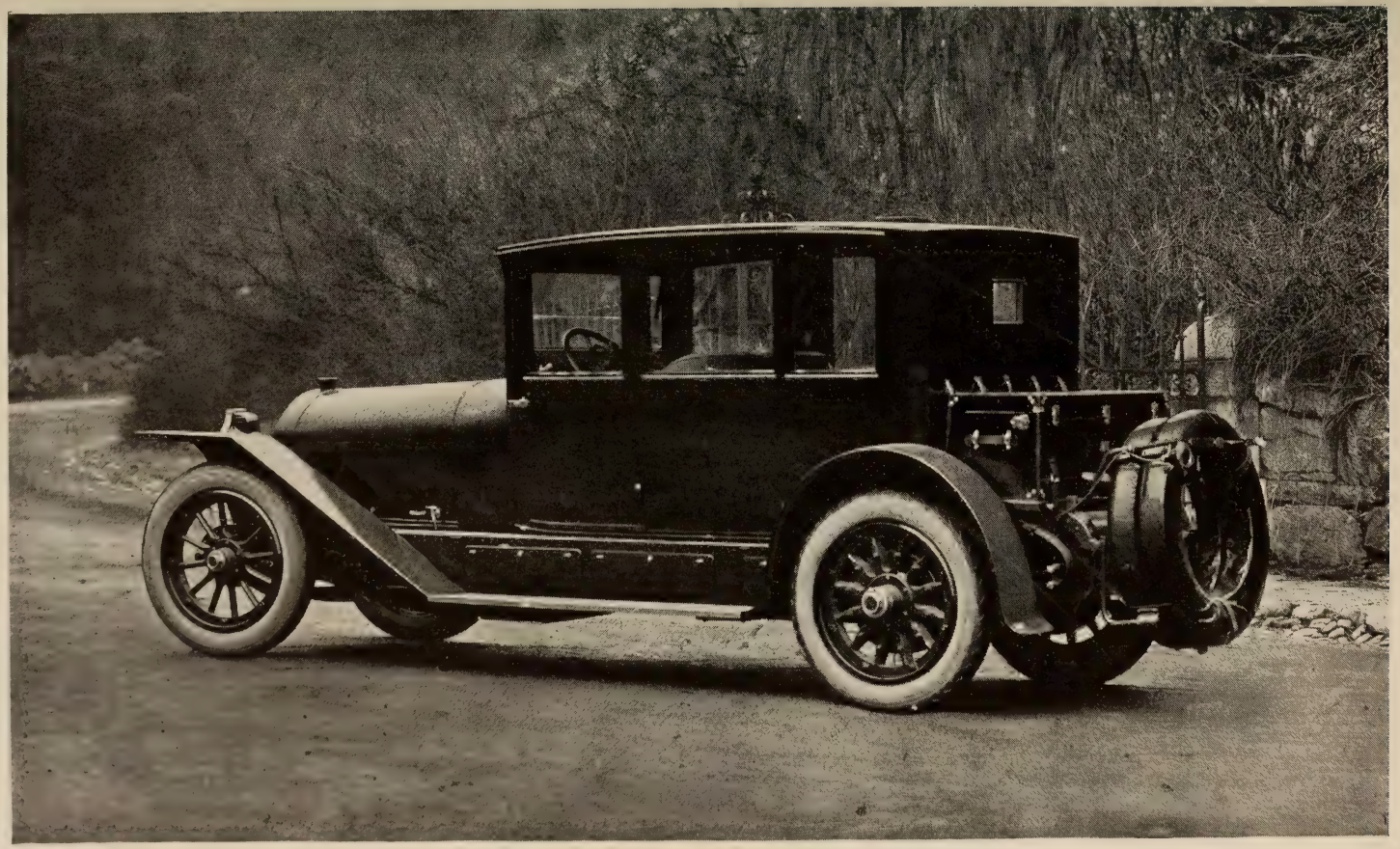

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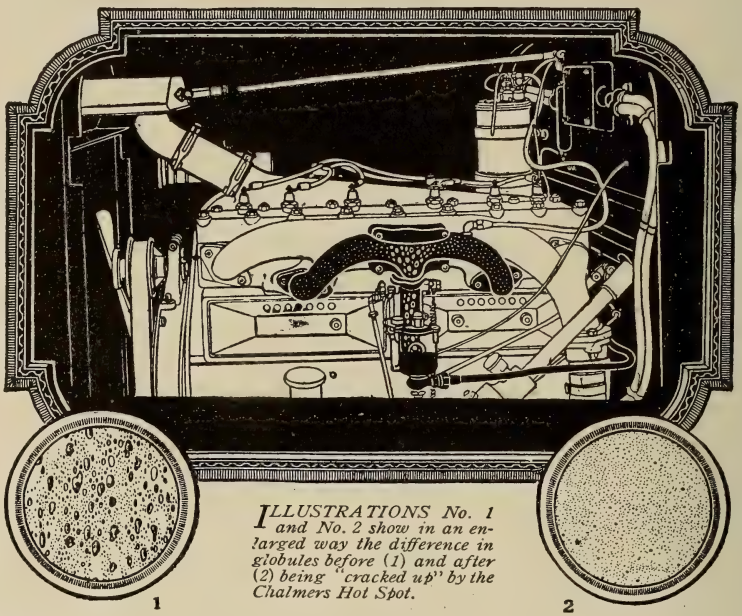


1

ILLUSTRATIONS No. 1 and No. 2 show in an enlarged way the difference in globules before (1) and after (2) being "cracked up" by the Chalmers Hot Spot.

2

Why All the Great Engines Must Pattern After the Hot Spot Chalmers

THOSE of you who would like, every now and then, to break into a dozen pieces the engine of your car with a sledge-hammer—or give the car away—or those of you who send it too often to the repair shop—stop a moment and ponder over this:

Maybe it isn't the engine's fault, nor yours, for that matter. Nine chances in ten it's the kind of gas you're using. For gas has gone down and down in grade.

Chalmers engineers were quick to note the change coming, and they worked night and day and were first to furnish the remedy—a redesigned engine.

The inferior gas of the day is heavy. It's so heavy that even after leaving the carburetor it still is in more or less a raw condition.

So the Chalmers engineers figured they must "crack up" the gas finer, which they have accomplished by that wonderful device known as Hot Spot.

This process done, the task then was to pass the gas into the cylinders with lightning-like rapidity so that the gas couldn't condense.

To accomplish this the Ram's-horn Manifold was designed. It takes its name from its shape. It has no sharp corners to block the rush of gas, but instead "easy air bends."

Hence no "pools" collect and the gas is passed to each cylinder in the same quantity of mixture at the same time.

Sooner or later other cars will come to these Chalmers principles. It is as certain as the sun will rise tomorrow.

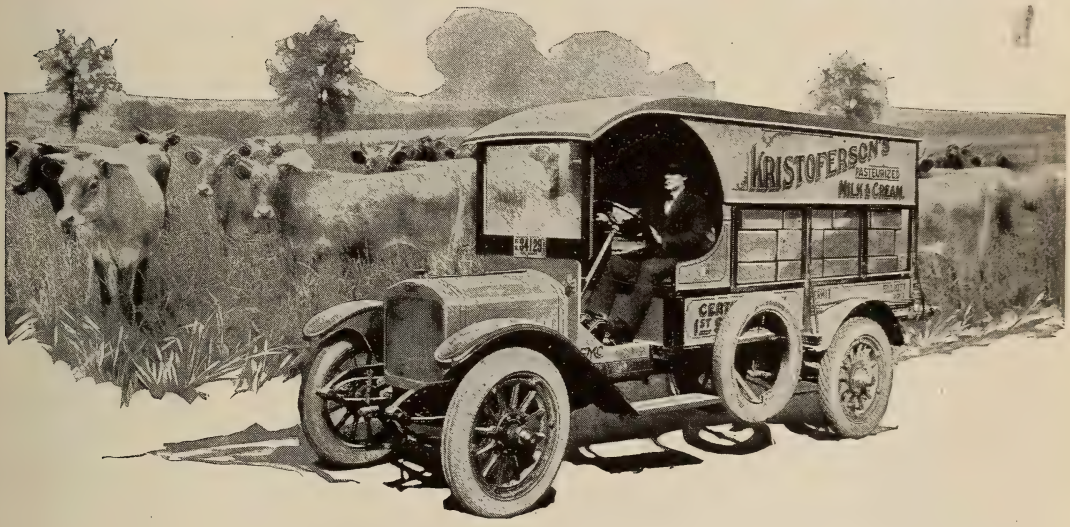
In the meantime Chalmers sales are climbing to rare new heights. Price, five-passenger, $1685 f. o. b. Detroit.

Quality First

CHALMERS MOTOR CAR CO., DETROIT, MICH.

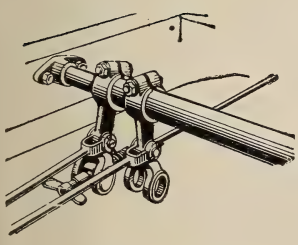
CHALMERS MOTOR CO. OF CANADA, LTD., WINDSOR, ONTARIO

General Motors Trucks
—on Dairy Routes



Sixteen GMC Trucks, most of them ¾ to 1 ton capacity, are delivering milk daily in Seattle and suburbs, for Kristoferson's Dairy. August Kristoferson, owner, says:

"We have used GMC Trucks for the past five years, and have put them through the hardest kind of service. In the meantime we have tried two other makes of trucks, the use of which has proved that GMC's are the best trucks we can get for our business. We might add that our first GMC is still on the job, and never misses a day. We are now standardizing on GMC Trucks with a fleet of sixteen operating in the city of Seattle."



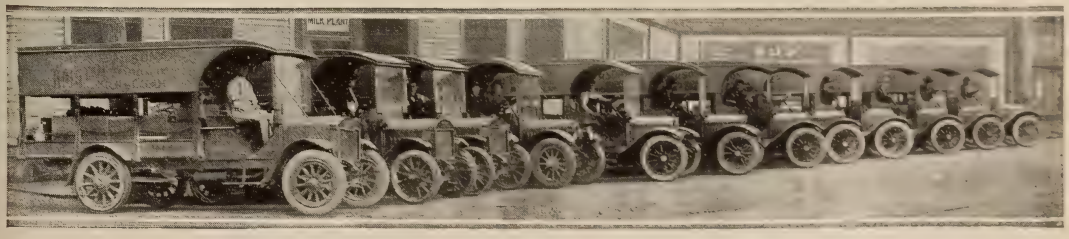
GMC Brakes are positive in action and great in strength; they hold the truck under most difficult conditions. Adjustments are made by turning large, simple, self-locking wing nuts on Brake rods, which can be done without tools in a few seconds' time.

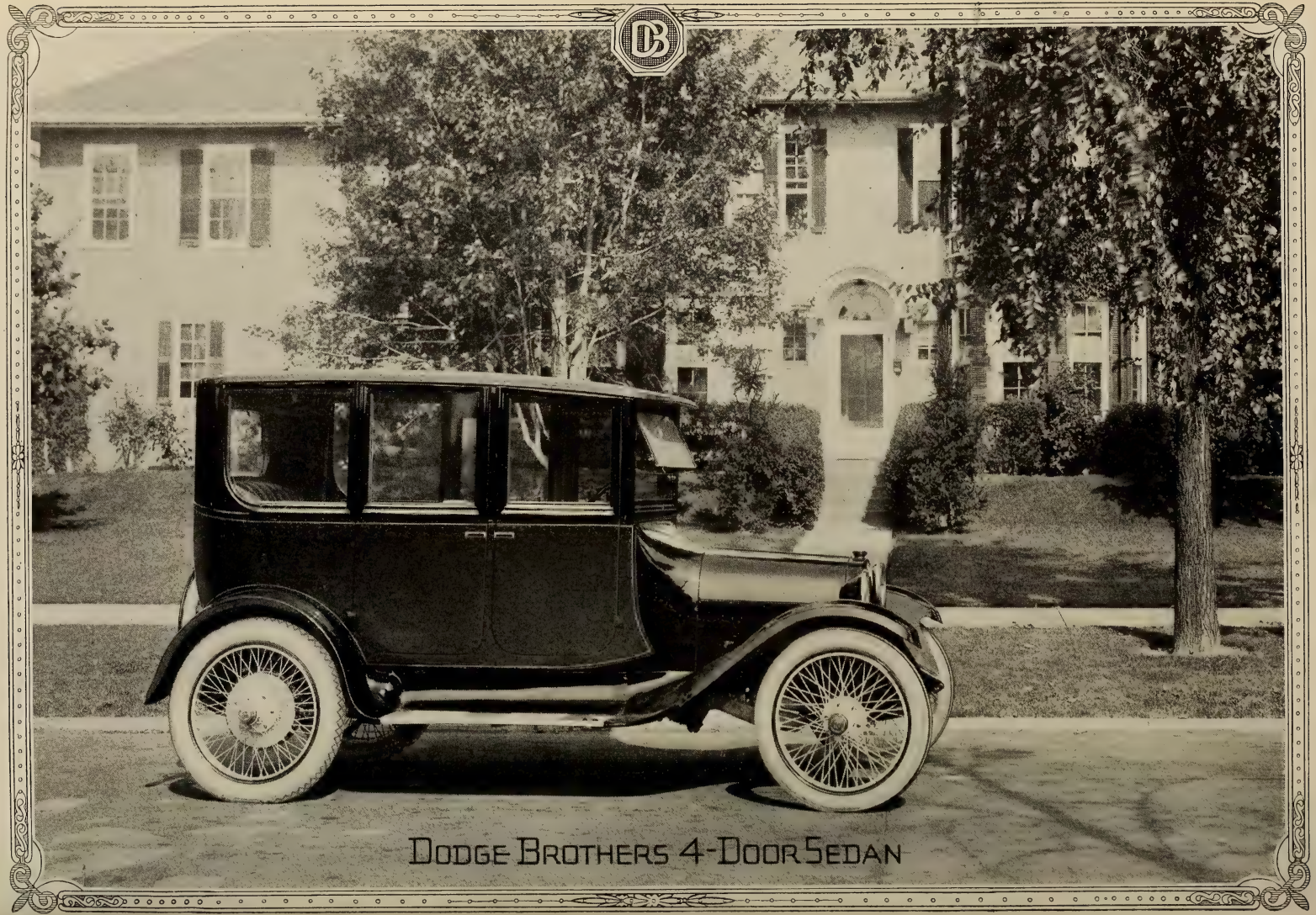
GMC Model 16, ¾ to 1 ton, was the model selected as standard in its class by the War Department. GMC Trucks are backed by the General Motors Corporation, the strongest organization in the automotive industry.

GENERAL MOTORS TRUCK COMPANY

PONTIAC, MICHIGAN

(543)





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Taxicabs use WEED TIRE CHAINS

Because they can't afford to take chances and because, with Weed Chains, they get greater mileage out of their tires.

It's a business proposition, pure and simple, with taxicab companies. They use Weed Chains for economy and accident insurance.

The *main* incentive for the use of Weed Chains is the accident-preventing feature—a most important factor as it means the saving of lives and property.

But further than that it is known from bitter and costly experience that the continual, constant and yet hardly perceptible slipping of the rubber tire-surface on wet roads and pavements—only the foot or so of lost traction at a time—is an alarming expense item—wearing out tires just the same as if you pressed them against a rapidly revolving grindstone.

Be as wise as the taxi driver and always put on your Weed Chains "at the first drop of rain."

Taxicab companies have learned from experience that *only by the use of Weed Chains* can this continuous wear on tires be prevented. Their drivers *are ordered* to put on their Weed Chains "at the first drop of rain" because of the thousands upon thousands of dollars that are thus actually saved every year in tire service and the elimination of skidding accidents. Wouldn't it be well for you to learn wisdom from the fellow who really knows?

Weed Chains are also made to meet the demand for an efficient traction and anti-skid device for trucks equipped with single and dual solid tires or with the very large pneumatic tires. They are so constructed that they satisfactorily meet the requirements of heavy truck service in mud, sand or snow.

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SIGHT-SEEING IN SCHOOL

A Cape in a Lake: Lake Como (kō′mō), Italy

The cape is the point of land. Why would you like to live in this town? How much farther could you see than if you did not live on a cape? Winds from over the water are cooling on hot days. Why would you like to live on a cape in the hot summer time? Storm winds are strongest over water because no high points of land check them. Where would you rather live in stormy times? And where will the cold winter winds be strongest? In summer the storm winds blow down this lake. They make the waves rise high. The boats try to reach quiet water. The cape shuts off the wind and makes a quiet place beside it. Two capes often make a bay. If they have high rocks or hills on them the bay is sheltered. Then it is a safe place for ships to come to land.

This cape is too small to be shown on the map. Study the map of North America and name all the capes. Tell where each is.

"A cape is a point of land extending into the water."

"A mountain peak is a high elevation of land composed mainly of rocks."

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As you read your newspaper today, note the references to places at home and abroad. Then try to visualize those places as they appear on the map. Can you form a clear idea of just where each place is located? Can you name the adjacent places? If the place named is a city in the United States, can you enumerate the States bordering on the State in which it is situated? Or if a foreign place is mentioned, can you draw a rough outline of the country?

Try, for example, to sketch the Shantung Peninsula, or the Dalmatian Coast, which has been brought into the limelight through the conflicting claims upon it of Italy and the Jugo-Slavs. Could you make an outline of Germany as defined by the Peace Treaty, indicating what territory has been lost and how it has been disposed of? Can you define the boundaries of the new nations of Europe that have been born since the war?

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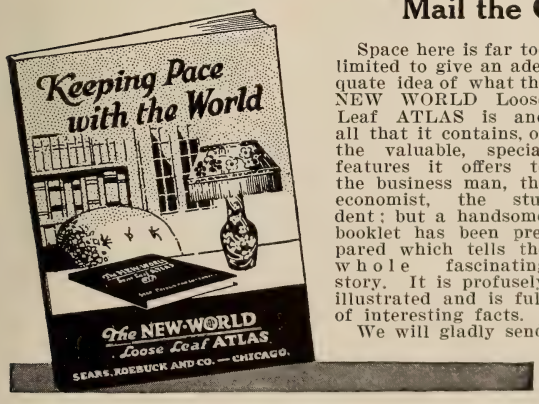

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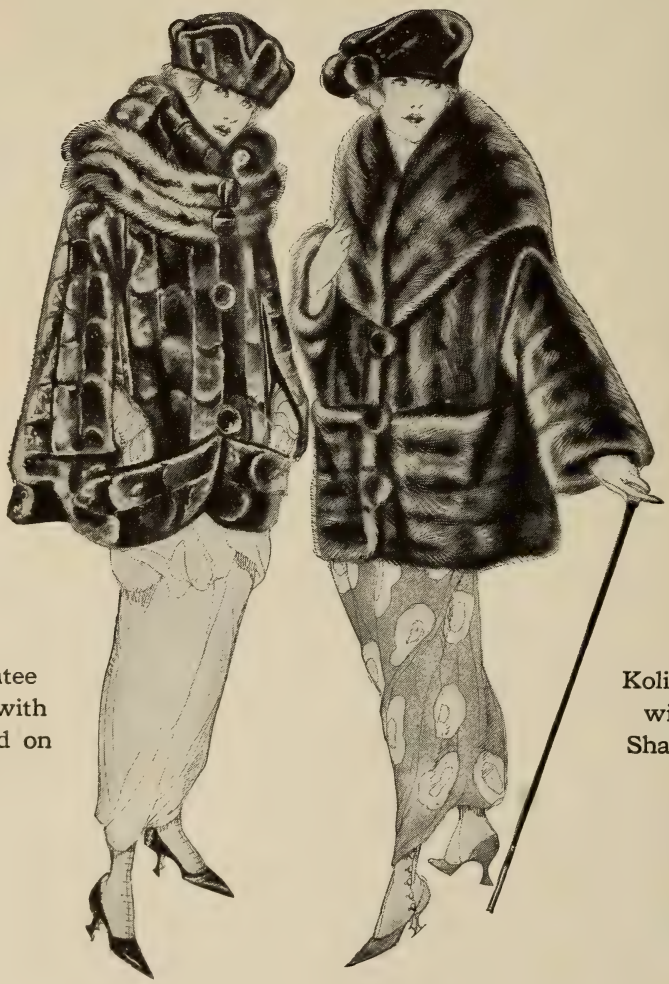

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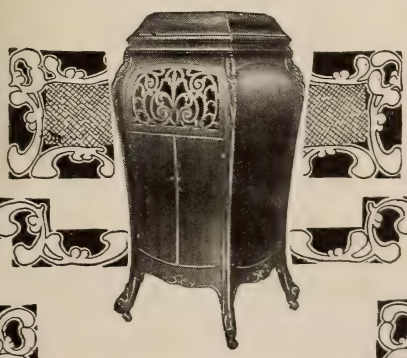

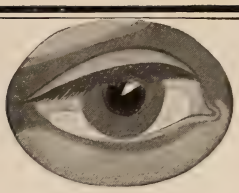

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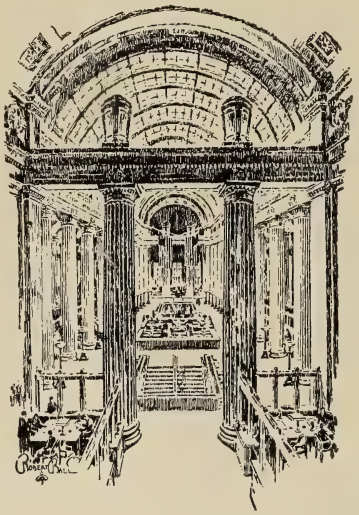

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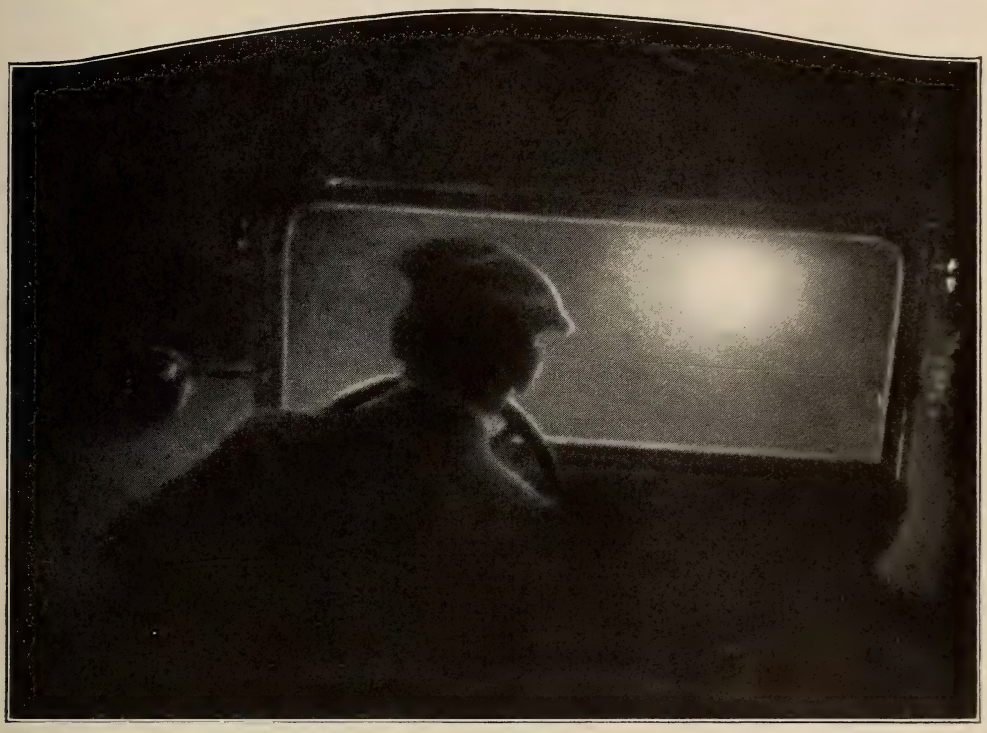

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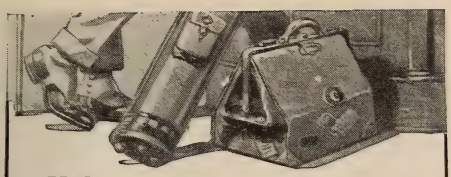

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VOL. XXXVI, No. 6 WASHINGTON DECEMBER, 1919

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THE ROMANCE OF MILITARY INSIGNIA

How the United States Government Recognizes Deeds of Heroism and Devotion to Duty

(The numbers in parentheses appearing in the text refer to the corresponding descriptive paragraphs and illustrations in color, pages 502 to 526)

BY COL. ROBERT E. WYLLIE, GENERAL STAFF, U. S. A.

THE United States has ever been a peace-loving nation, concerned with the industries and arts of peace and giving scant attention to anything military.

To the great bulk of the present generation a soldier in uniform was a *rara avis*—something to be looked at in astonishment when seen; so that, even in garrison towns, it is not surprising that the soldier preferred to resort to the camouflage of civilian clothes when going on pass. But now, participation in the great World War has carried the Army into every home in the country; the uniform is no longer unfamiliar; it is everywhere, and there is not a family whose members cannot speak with pride of their boy who served Uncle Sam in the great emergency.

This feeling of personal relationship to the military services carries with it the desire for information, and that is not always so easy to obtain. Four and a half million Americans are now entitled to the Victory Medal; yet how many fully comprehend just what that medal is, or what is meant by the bit of rainbow ribbon covered with stars that Jack wears so proudly? And that Distinguished Service Cross that Bill has! What relationship does that bear to the Victory Medal, or to the Croix de Guerre that Sam sports?

And then the shoulder insignia! More than 2,000,000 men in uniform wore them—designs in all patterns and colors. What was their origin? Why were they worn? What do they all mean, anyhow?

These are now subjects of interest in American homes. The previous indifference has been replaced by a thirst for information, due to the personal touch that each family now has with the Army and Navy, and it furnishes the excuse for what is to follow. If you insist that you are not interested, in spite of the above assertions to the contrary, skip the reading matter and confine your attention to the illustrations, for you cannot resist the reproductions of the Beck Engraving Company.

THE ORIGIN OF MEDALS

The origin of medals and other similar decorations is lost in the mists of antiquity. Probably the earliest historical record was the award made by an Emperor of China, in the first century of the Christian era, to his military commanders.

THE VICTORY MEDAL WHICH WILL BE GIVEN TO 4,500,000 AMERICANS

The large disc is the obverse of the medal, showing a winged Victory; the smaller shows the reverse with the names of those nations which actually took part in hostile operations against the Central Powers. The medal was designed by J. E. Fraser under the direction of the Commission of Fine Arts (see text, pages 499 and 507).

During the Middle Ages various orders of knighthood flourished, and the members were distinguished by insignia worn to denote the order to which the individual belonged, as well as the position of influence and honor attained; but these corresponded more nearly to the modern insignia of rank and arm of service than to medals given for services rendered by the recipient.

We must advance our historical research to the time of Queen Elizabeth to find the beginning of our modern system of medals, and, inasmuch as the development can be traced more easily in England than elsewhere, a survey of the growth of the British system will be given.

In 1588 Queen Elizabeth issued a medal commonly known as the "Ark in Flood" on account of the design of the reverse, which shows an ark floating on the waves. It is uncertain for what particular service this medal was awarded, but as that was the year of the destruction of the Great Armada, and this was a naval medal, it is not unreasonable to suppose that it commemorated that event. Some of these medals were in gold and some in silver, and they were provided with a ring for suspension, so were evidently intended to be worn.

Two other medals were struck in the same reign to commemorate the victory over Spain, but we have no information as to the recipients of any of these three.

Elizabeth's successor, James I, awarded a medal to his distinguished naval commanders, and the unfortunate Charles I

EVERY AMERICAN WOUNDED IN BATTLE DURING THE WORLD WAR IS TO RECEIVE THIS TESTIMONIAL, SIGNED BY THE COMMANDER-IN-CHIEF OF THE ARMY AND NAVY

This handsome certificate, in black and white, designed by E. H. Blashfield, shows Columbia bestowing a new order of knighthood upon one who has sacrificed his blood for humanity. It is hoped that the certificates will be ready for distribution in December, 1919.

U. S. Official Photograph

THE ALLIED GENERALS HONORING GENERAL PETAIN AT METZ

The ceremony at Metz when President Poincaré of France presented the baton of marshal to General Petain, commander-in-chief of the French Army, was attended by a memorable gathering of Allied leaders. The "squad" which aligned itself behind the new marshal during the ceremony included, from left to right: Marshal Joffre, Marshal Foch, Field Marshal Sir Douglas Haig, of the British Expeditionary Forces; General John J. Pershing, American Expeditionary Forces; General Gillain, chief of staff of the Belgian armies; General Albricci, of the Italian Army, and General Haller, of the Polish Army. In the background is General Weygand, chief of staff to Marshal Foch.

International Film Service

THE SECRETARY OF THE NAVY DECORATES U. S. MARINES IN ENEMY TERRITORY: VALLENDAR, GERMANY

The medal-covered panel in the background indicates that there were many heroes among the members of the Fifth Marines, Second Division, to be rewarded on this occasion. Their unit is indicated by the shoulder insignia—an Indian head within a white star on a square background (see text and illustration, number 43).

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AMERICAN NAVAL OFFICERS RECEIVING THE FRENCH LEGION OF HONOR DECORATION

The honor is being bestowed through the Naval Attaché of the French Embassy at Washington on board the U. S. S. *Pennsylvania*. Note the guard of marines on deck and the bluejackets in the distant background.

caused several medals to be struck as rewards for those who followed his fortunes against the Parliamentary party.

The year 1650 was momentous in the history of medals, as it produced the first of which any authentic record exists showing that it was issued to officers and men alike. In all previous cases, so far as records are available, the medals were given only to the higher commanders, but after the Battle of Dunbar, in 1650, when Cromwell defeated a Royalist uprising in Scotland, Parliament voted that medals be given to all its troops engaged in the battle, rank and file. The officers received small gold medals and the men were given larger medals in silver. They were worn suspended by chains from the neck.

Several naval medals were given during the Commonwealth and in the reign of Charles II for the victories over the Dutch, but it was not until 1692, during the time of William and Mary, that the Dunbar precedent was followed, and a medal was again given to all the rank and file engaged. In that year a medal was struck and given to all who took

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FRENCH WAR HEROES RECEIVING AMERICAN DECORATIONS IN THE SHADOW OF NAPOLEON'S TOMB

This ceremony, at which General Pershing represented the American Government, took place in the Court of Honor, Hotel des Invalides, Paris.

part in the naval victory over the French at La Hogue.

ST. VINCENT'S ENTIRE MILITIA HONORED

But the old idea of medals for the commanders only still persisted, and although we find many medals issued during the succeeding reigns, not any were for general distribution to all who participated until 1773, when the Island of St. Vincent gave a medal to the entire personnel of its militia for suppressing the insurrection of the Carib Indians. This is also noteworthy as being the first medal which was worn suspended from a ribbon.

In 1784 the Honorable East India Company awarded a medal to all who took part in the war against Hyder Ali in the Deccan—officers and men, whites

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A GRATEFUL GOVERNMENT RECOGNIZES THE VALOR OF THEIR HERO SLAIN

A widow, a mother, a brother, and a widow receive the Distinguished Service Cross in behalf of loved ones who lie in France. The presentation took place at City Hall, New York. The crosses will not be worn by these individuals, but will be kept as mementoes of lives nobly sacrificed.

and natives. The East India Company at that time was the governing power in India, under a charter from the British Government, and had its own army. This was followed by a similar award to all engaged in the campaign against Tippoo Sahib, in 1791-2, in Mysore. Both of these medals were worn suspended from the neck by silk cords.

In England itself medals for the commanders became numerous. For example, they were given to some of the officers present at the capture of Louisburg in 1758, during the French and Indian War; to the admirals and captains of Lord Howe's fleet in the victory at Ushant, 1794, known to Englishmen as "the glorious first of June"; to the same

class who participated in the battles of St. Vincent, Camperdown, the Nile, Trafalgar, and other famous naval victories between 1794 and 1815; to battalion and higher commanders in the Battle of Maida, 1806; and finally the Peninsula gold medal of 1810, given to higher officers who took part in the victories in Spain during 1808 and 1809.

THE ORIGIN OF CLASPS WITH MEDALS

The Peninsula medal is worthy of further comment, as it established another precedent, just adopted by the United States—the system of clasps. As first authorized, a medal was given for each battle, all being the same, except that the name of the battle was on the reverse. The authorization was gradually extended to include the entire Peninsula war, and the number of medals possessed by some of the officers became so large that in 1813 it was directed that one medal only should be worn by each officer, and that for each other battle a bar bearing the name of the battle should be placed on the ribbon of the medal.

The number of these bars (or clasps, as they are now called) was limited to two, and as one engagement was inscribed on the medal this was equivalent to three battles.

When an officer had been present in four battles the medal was replaced by a gold cross having the names of the four battles thereon, one on each arm of the cross, and subsequent engagements were again shown by clasps placed on the ribbon of the cross.

This is the origin of the system of clasps which has been in use by the British since that time and which we have just adopted in the case of the Victory Medal.

The East India Company continued its practice, giving a silver medal to the native troops of the campaign of 1795-6 which captured Ceylon; to its troops who took part in the Battle of Alexandria against the French in 1801, and to those who took part in the capture of Java in 1811.

Still the British Government did nothing for the rank and file, and private individuals began to bestow medals. Thus General Eliot, the commander at Gibraltar, personally gave a medal to all the members of the Hanoverian brigade who took part in the famous defense of that fortress, 1779-82; the British troops got nothing.

In 1798 a Mr. Davison, friend of Nelson, presented medals to every officer, seaman, and marine in the Battle of the Nile. Admirals and captains received a gold medal, lieutenants and warrant officers one in silver, and the men one in bronze. They were worn from a blue ribbon around the neck. This was followed by a similar presentation on the part of a Mr. Boulton to all who took part in the Battle of Trafalgar in 1805. This was worn from a dark-blue ribbon.

WATERLOO INAUGURATED A UNIVERSAL PRACTICE

Notwithstanding these examples, it was not till Waterloo that the British Government returned to the Dunbar precedent. In 1816 the Waterloo Medal was authorized "to be conferred upon every officer, non-commissioned officer, and soldier present upon that memorable occasion," and this definitely inaugurated the present custom of granting the same medal to officers and men alike, which has been followed by the British since that time and has now spread to all the nations of the world. It is truly a universal custom; so it is hoped that this survey of its development will not be amiss.

In later years the British tried to remedy the results of previous neglect by authorizing medals for campaigns prior to Waterloo, the most notable of these being the Peninsula Medal, given to all the survivors of the engagements between 1793 and 1814, including not only those in the Peninsula War, but also in Egypt and the West Indies. However, as this was not done until 1848, the survivors were not very numerous. There were 28 clasps with this medal, 15 being the greatest number awarded to one man.

FIRST AMERICAN MEDAL GIVEN TO WASHINGTON

The British Navy General Service Medal of 1847, issued to all who saw service in the naval engagements between 1793 and 1815, is remarkable in the num-

ber of clasps authorized—230; however, seven was the largest number given to any one man, and only two received that many.

The history of decorations in the United States is remarkable in its similarity to the British experience. At first only the services of the commanders were recognized, the rank and file being entirely ignored. The first medal bestowed by our government was one in gold to General George Washington, to commemorate the evacuation of Boston by the British in March, 1776. Captain John Paul Jones was similarly rewarded after his famous fight with the *Serapis* in 1779.

Several military and naval commanders were presented gold medals to commemorate battles in the War of 1812. Generals Scott and Taylor were given gold medals for their services in the Mexican War, and General Grant had a similar reward after his victory at Chattanooga in 1863.

In all these cases the medal conferred was to commemorate some special victory. It was presented only to commanders of the troops or ship involved, and accompanied the thanks of Congress. It was never worn by the recipient, and was never intended to be worn; in fact, it might be said that it was really not a decoration in the sense we now use that word, but was a material evidence that the possessor had received that much-prized honor, the thanks of Congress. The rank and file received nothing.

In 1847, during the Mexican War, Congress authorized the President to present a certificate to enlisted men who specially distinguished themselves. No medal or decoration, however, accompanied this award, and it was not until 1905 that a badge was authorized to show that the wearer had received a Certificate of Merit (No. 5). So in its early days it was in no sense a decoration.

MEDAL OF HONOR SOLE MILITARY DECORATION FOR 40 YEARS

In 1861 the United States, by establishing the Medal of Honor (Nos. 6 and 25), departed from what had become a settled policy against medals and decorations for wear. This was by congressional action, and at first applied only to enlisted men of the Navy, but was soon extended. However, it remained for nearly forty years the sole American military decoration, the life-saving medals (Nos. 20 and 21) authorized in 1874 not being military in character.

At this point the writer pauses to cast a retrospective glance to the days before the Spanish-American War, when he entered the service. We now have in the Army alone 16 different medals, and as many more in the Navy, not to mention the numerous foreign decorations which have been bestowed, all of them available to every grade; so that a uniform is hardly considered complete without a row of ribbons on the breast, and two or three rows are by no means uncommon.

What a difference a few years make! Then the Medal of Honor was our only decoration, and, as thirty years had elapsed since the Civil War, there were not many in the army. There never had been many, in fact; but at that time they were exceedingly scarce; and not only that, but one might be well acquainted with a Medal of Honor man and still be ignorant of the distinction, because no ribbons were worn to show possession of it. Only on state occasions, when in full-dress uniform, was the medal produced. In fact, a decoration in those days was about as common as a bison on the streets of New York City, and created just about as much of a sensation, even in the Army.

DECORATIONS NOT HEREDITARY IN ANY COUNTRY

It was undoubtedly the idea of republican simplicity that operated to retard the growth of this custom in the United States. The belief existed that decorations were akin to nobility, and not in harmony with true democracy, but part and parcel of the monarchical system. Nevertheless, republican France has preserved the customs of imperial France in that respect without any sacrifice of democracy. All republics had something of this character, but we were the last to fall in line.

It is not contrary to democratic ideals to reward merit, and that is the purpose of decorations and orders. Not even in imperial nations are they awarded on

Photograph from Paul Thompson

AMERICAN OFFICERS AFTER RECEIVING BRITISH DECORATIONS FOR VALOR AND DISTINGUISHED SERVICE IN DEFEATING THE COMMON ENEMY

Note that the seven officers nearest the camera are wearing the newly bestowed badges suspended from ribbons around the neck. This indicates either second or third class of an order. The star on the breast of the nearest officer definitely marks his status as the second class; the absence of the star on the other six shows them to be in the third class (see text, page 490). The medals, being on the breasts of the remaining officers, show a lower decoration.

hereditary grounds, and in no case does the son inherit any of those distinctions conferred upon the father. They are invariably given because of the services performed by that individual, and have a wonderful effect on the morale of the troops, as our recent war has abundantly proved.

On the other hand, what can we say for a system which rewards only those in

Official Photograph, U. S. Navy Air Service

LIEUTENANT COMMANDER READ, THE FIRST MAN TO FLY ACROSS THE ATLANTIC, BEING WELCOMED UPON HIS DESCENT IN THE HARBOR OF LISBON

From the Portuguese Government Commander Read received the decoration of the Order of the Tower and Sword for his epochal feat. He was subsequently awarded the cross of the British air force upon his arrival at Plymouth, the last stop in the transoceanic voyage.

command and leaves the juniors with nothing? That is far from democratic. To take the position that the conferring of decorations is contrary to democratic ideals is to ignore human nature and to line oneself up with those who think that republics *should* be ungrateful.

FOUR MEDALS GIVEN AFTER THE SPANISH-AMERICAN WAR

But enough of this digression. Let us return to the narrative.

It was the Spanish-American War, which caused so many changes in the outlook of this nation, that brought about the extension of our system of decorations. At its close Congress provided for four different medals: one, familiarly known as the Dewey Medal (No. 34), to be issued to officers and men who participated in the Battle of Manila Bay; a second, commemorative of the naval engagements in the West Indies (No. 32), for the officers and men participating therein;

a third for members of the Navy who rendered particularly meritorious or hazardous service, other than in battle, during the war (No. 28); and finally, a medal (No. 14) for members of the Army in the Philippines who had agreed to serve for the Spanish War only and who were therefore entitled to their discharge on the ratification of the Treaty of Peace, but who nevertheless volunteered to remain in the islands for service against the insurrectos until they could be relieved by other troops.

THE GROWTH OF PATRIOTIC SOCIETIES

In the meantime, during the latter half of the nineteenth century, the natural human craving for suitable recognition and decoration grew and flourished, being largely instrumental in causing the formation of various societies composed of veterans of wars, descendants of veterans, descendants of early settlers, etc., all being modeled largely after the Order of the Cincinnati, which was established during the American Revolution.

Each of these societies adopted a distinctive badge and ribbon for wear on suitable occasions, and there can be no doubt that this was a natural outcome of the conditions which existed, as we do not find in any European country such an assortment of these organizations with their decorative badges.

This phase of human nature, which caused their formation in the United States, is sufficiently provided for in Europe by the various official titles, orders, decorations, and medals bestowed by the governments, so that there is no necessity for the organization of private or semi-private societies to fill the human desire for distinction and decoration—a desire which is evidently too strong to be repressed by the early ideas of republican simplicity.

This idea spread and became so general in America that it was found that a soldier could wear as many as thirteen different badges by virtue of inheritance alone, and yet he might never have seen a shot fired—in fact, he might still be a cadet at the academy or a recruit in the awkward squad.

Carried to this extreme, decorations became meaningless, as they did not denote personal distinction, but the deeds of one's ancestors—a situation very far from the democratic idea which considers that all men came into the world on an equality.

As a result, the War Department, in January, 1905, published an executive order establishing the principle of recognizing service in wars and campaigns by issuing distinctive medals therefor, to be given to all alike, officers and men, the lowest as well as the highest.

This was the situation at the time of our entrance into the war with Germany. We had established the principle of separate medals for the different campaigns, to be given to all who served in them, and we had two personal decorations for distinguished services, namely, the Medal of Honor, which has always been jealously guarded, given only for the most extraordinary heroism; and the Certificate of Merit, a distinction confined to enlisted men.

We had no decoration with which to reward services other than heroism, nothing corresponding in any way to the decorations which European countries are wont to bestow on successful generals and other officers on whose efforts the success of the fighting man mainly depends.

A JUNIOR REWARD NEEDED

It seems unreasonable to reward an individual act of bravery which, however gallant and self-sacrificing, really has but an indirect influence on the result of the war, and neglect the extremely important work of the master minds on whom the country depends for victory. Yet that was the actual condition in this country two years ago. In addition, it appeared evident that something was needed to supplement the Medal of Honor, some junior reward for gallantry, if the former was to be kept on the high plane which it had hitherto enjoyed. Without some such reward there was danger of cheapening our primary decoration by bestowing it for acts which deserved recognition but which nevertheless did not justify the distinction of the Medal of Honor.

Another feature also arose early in the war which demanded consideration. It is the custom of other countries to bestow

Photograph by Navy News Bureau from International Film Service

U. S. NAVAL OFFICERS RECEIVE THE LEGION OF HONOR FROM FRANCE

The decoration of Grand Officer of the Legion of Honor was bestowed on Vice-Admiral Henry B. Wilson (left), commander-in-chief of the American naval forces in France. The other officers, standing from left to right, who were made Commanders of the Legion of Honor were Rear-Admiral R. S. Griffin, Rear-Admiral R. Earle, Rear-Admiral D. W. Taylor, Captain N. E. Irwin, Captain F. Lyon, Captain A. G. Howe, Captain T. T. Craven, Lieut. Comdr. L. H. Maxfield, Lieut. Comdr. R. M. Hinckley, Commander Jacob H. Klein, and Lieut. Comdr. J. A. Gade. The ceremony of decoration took place last June in the office of the Secretary of the Navy, who is seated at the right of the picture. To his right is Admiral Benson. The officers in white are Captain Saint-Seine, the French Naval Attaché, who made the presentations, and his assistant, Lieut. Charles Tavera.

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DISTINGUISHED SERVICE MEDAL MEN DECORATED BY THE SECRETARY OF WAR FOR THEIR SHARE IN WINNING THE WAR WITH GERMANY

Front row, left to right: Col. W. J. Nicholson, General Leonard Wood, Secretary Baker, General Hugh L. Scott, General W. A. Holbrook, General H. M. Lord. *Second row:* Charles Eisenman, General G. A. Wingate, General J. M. T. Finney, General A. H. Sunderland, General E. A. Kreger, General W. A. Westervelt, General E. F. Ladd. *Third row:* Col. R. E. Wyllie (author of "The Romance of Military Insignia"), Col. C. De F. Chandler, Col. H. B. Lindsley, General C. McK. Saltzman, Col. W. S. Grant, Col. H. C. Swither, General Lytle Brown, Col. T. F. Dodd. *Fourth row:* Col. T. A. Roberts, Col. Bruce Palmer, General E. E. Winslow, Col. H. H. Young, Lieut. Col. James H. Perkins, General W. S. Thayer, Col. J. G. Steese, Col. W. J. Wilgus, Lieut. Col. F. B. Jewett, Col. T. de W. Milling, Col. B. Dewey, Col. J. R. McAndrews.

U. S. Official Photograph

GENERAL PERSHING BESTOWING THE AMERICAN DISTINGUISHED SERVICE MEDAL ON A GROUP OF BRITISH OFFICERS

When the United States departed from its policy of not allowing the members of its uniformed services to accept decorations from foreign governments, except by special permission of Congress, authority was also granted to bestow American decorations on citizens of Allied nations who had distinguished themselves in co-operation with our Government in winning the World War (see also illustration, page 469).

decorations on military officers of allied nations who are associated with them or with their troops during the war, but under our Constitution officers of the United States Government are forbidden to accept any rewards or decorations from foreign countries without the express permission of Congress, and our legislative body has been very reluctant to give such assent in the past.

CONGRESS AUTHORIZES AMERICANS TO ACCEPT FOREIGN DECORATIONS

Very early in the World War some of our Allies indicated their desire that we should recede from our accustomed position in such matters and grant to members of our military and naval forces the privilege of accepting foreign decorations.

Several influential citizens, both in and out of Congress, took up all these questions, and an agitation was started to cover the points enumerated, with the result that in January, 1918, the President, by executive order, established two additional decorations for the Army, the Distinguished Service Cross (No. 4), to be awarded for extraordinary heroism not justifying a Medal of Honor, and the Distinguished Service Medal (No. 7), to be given for specially meritorious service in a position of great responsibility. This action was confirmed by Congress and enacted into law in the July following. In February, 1919, by congressional action, corresponding decorations were adopted for the Navy (Nos. 22 and 24).

Congress also gave its consent, by general blanket provision, for the acceptance of decorations conferred by governments with whom we were associated in the war, such permission to expire one year after the close of the war, and the President was authorized to bestow American

decorations on members of the military and naval forces of our Allies.

THE VICTORY MEDAL AND ITS CLASPS

The last act in this evolution occurred on the question of the Victory Medal (see illustration, page 464, and descriptive text, page 507), which is given to commemorate the war with Germany.

Heretofore it has been our custom to bestow war medals only on those who participated in the campaigns. Those who had the misfortune to remain in the United States received no recognition, even though engaged on work vital to the success of the oversea forces. Soon after the armistice it became evident that the sentiment of the country was against such a discrimination, and a bill was introduced into Congress to award a medal to all who served in the Army and Navy, regardless of whether or not they had oversea service.

This bill, due to the press of business in the last session of Congress, never emerged from the committee, but the principle was accepted by the War Department and the order establishing the Victory Medal gave it to all who served on active duty during the war, and the British system of clasps was adopted to denote participation in battle operations.

This custom, as already noted, has been in force in Great Britain since 1813, and under it a much more complete recognition is given for services performed in wars than is possible by a medal alone, because the medal itself is given to all who in any way contributed to the military operations, and, in addition, clasps, to be worn on the ribbon above the medal, show in which battles or campaigns of the war the wearer participated. Thus the medal, with its clasps, gives a fairly complete record of the services rendered.

DECORATIONS NOT SOUGHT BY UNIFORMED SERVICES

Notwithstanding our recent adoption of European customs regarding decorations and medals, we have not followed blindly in the footsteps of other nations, but have succeeded in developing at least three features not possessed by any other country. These will be referred to and explained in due course, but the subject is mentioned here to show that our present system, while based on methods already existing abroad, is distinctly American and not merely an imitation.

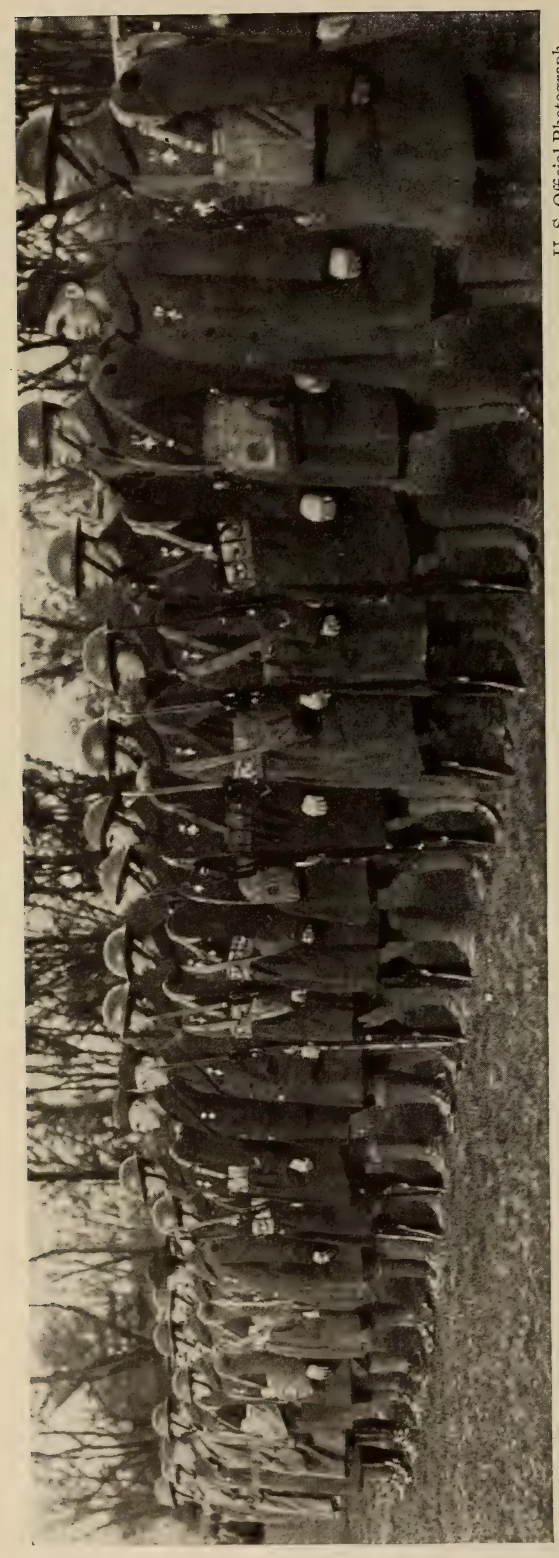
It will be observed that in this evolution of decorations in the United States the principal rôle has been played by civilians, not by the Army or Navy. Almost every step was taken in response to an act of Congress or to meet the demand of public opinion.

It is not intended to convey the inference that Army and Naval officers are opposed or indifferent to these matters. A soldier is merely a citizen in uniform and has the same general ideas and aspirations as any other citizen, and the gradual growth of the feeling in favor of decorations was shared by the Army and Navy as well as by civilians; but it was due to the activities of the latter that the present system was established, not to the soldier and the sailor, who are the direct beneficiaries thereof.

MEDALS, DECORATIONS, AND BADGES DEFINED

In its broad conception, a medal is a metallic ornament used for commemorative and decorative purposes and usually given as a reward. The word decoration is somewhat broader in its meaning, as it is not confined to metallic, but embraces ornaments made of any material. In a technical sense, however, it has been found necessary to restrict the meanings of both these words, and a decoration can be defined as an ornament of honor bestowed for some individual act or service, in contradistinction to a service medal, which is for general distribution, commemorative of some war, campaign, or other historical event, to all those who honorably participated therein, irrespective of the value of their individual services.

For example, a "Medal of Honor" is a decoration, as it is conferred for some signal act of heroism performed by the individual. But the Victory Medal is not a decoration, as it is for general distribution to all who served honorably in the war with Germany, no individual act



U. S. Official Photograph

WINNERS OF THE DISTINGUISHED SERVICE CROSS IN FORMATION FOLLOWING THE CEREMONY OF PRESENTATION

More than 5,000 Distinguished Service Crosses have been awarded for deeds of valor in the World War, compared with 79 Medals of Honor.

other than service being required; it is therefore classed as a service medal.

A badge is given to show excellence or qualifications in small arms, swordsmanship, aviation, etc. From these definitions it can be seen that a decoration is the highest distinction and takes precedence over both service medals and badges, which follow in that order.

ORDERS, A CLASS OF DECORATION FOREIGN TO AMERICA

In most foreign countries there is an additional class coming ahead of decorations, namely, orders. They are the lineal descendants of the old orders of chivalry of the Middle Ages, and while they are given for individual services, just as are decorations, there is the difference that an order is virtually a society and the honor conferred is that of being made a member of the society. The insignia is worn as a visible evidence of such membership, while in the case of a decoration it is the ornament itself which is the distinction awarded.

Most orders are divided into several classes, corresponding to the different ranks of the members of the old chivalric orders, and the class possessed by any individual depends on the relative value of the services which it is desired to reward. The class is shown by the insignia worn.

The United States possesses no orders and our regulations make no distinction between orders and decorations, the latter term covering both, but some idea of the difference made by other nations is essential to a proper understanding of the subject.

While some medals and decorations are made in the form

of a cross or star, the vast majority are circular-shaped, like a coin, so that a fairly close inspection is required to recognize the distinction between them. To provide a ready means of identification, each has a distinctive ribbon, so that by using different combinations of colors a glance is sufficient to identify the particular decoration or medal. This ribbon also serves the purpose of providing a means of suspension for the medal itself; it therefore becomes an integral part of the ornament, the medal not being complete without its own distinctive ribbon.

Ribbons are not used with the different badges which show qualifications in small arms, etc., as these badges themselves are either made in a shape which is easily recognized or they have a plain and legible inscription indicating exactly the purpose of the badge.

The insignia of military and other societies referred to previously also have their distinctive ribbons. These are known by our War Department as miscellaneous badges. They are not official government awards, but are given only to the members of a society by the society itself. However, they are decorations in the broad acceptance of that word and as such their wearing should be

AN AMERICAN MAJOR RECEIVING THE LEGION OF HONOR AND THE KISS OF THE FRENCH OFFICER MAKING THE PRESENTATION

The practice in the American Army and Navy is to congratulate the recipient of a decoration with a handshake, but among the French the salute on the cheek is the custom.

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U. S. Official Photograph

A HOSPITAL FOURSOME WEARING THE BRONZE BADGE OF COURAGE

Both the Red Cross nurses and their American soldier patients in this French hospital garden have been decorated with the Croix de Guerre.

controlled by the same rules of custom and good taste which govern the wearing of any decoration.

THE ETIQUETTE OF WEARING DECORATIONS

In uniform, a military man wears medals and decorations only on full-dress occasions, and then he is limited to those awarded him by his own, an equal, or a superior government; medals of inferior origin are not worn. To illustrate: a soldier of the United States Army, in uniform, should never wear a medal presented to him by a State, municipality, or society, but only those of the Federal Government or a co-ordinate foreign government.

A State officer, on the other hand, in uniform can wear a medal presented by his own or any other State, in addition to those given to him by the United States or a foreign government, but he should not wear either a municipal decoration or a society badge. This is on the principle that it is derogatory to the dignity of the government whose uniform is worn to ornament it with a decoration emanating from a subordinate authority.

For civilian wear, the rule is more elastic, but the same general principle applies. As already stated, medals are worn only on full-dress occasions—that is, on occasions of ceremony. Applying this to civil life, we have the custom that decorations should be confined to appropriate ceremonious occasions. At such times a personal decoration awarded by a sovereign government is rarely out of place, but a service medal would be appropriate only if it was a military ceremony, a State or municipal medal only at a State or municipal occasion, and the badge of a society only at a meeting of that society.

SUBSTITUTES WORN FOR MEDALS

The canons of good taste furnish the best guide, and these will not be violated if the decorations and medals worn are limited to those which are strictly appropriate to the occasion.

It is thus apparent that medals and

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MANY HEROIC WOMEN HAVE BEEN DECORATED FOR VALOR IN THE WORLD WAR

Having returned from France, these three Y. M. C. A. workers (note the triangular insignia on hat and sleeve) are receiving the Croix de Guerre from a French High Commissioner who brought the decorations from Paris.

decorations are rarely worn. They are not to be flaunted promiscuously, but are reserved for times when it is desired to do special honor to the occasion. However, substitutes are provided for other times, to show that the wearer has received recognition by his government.

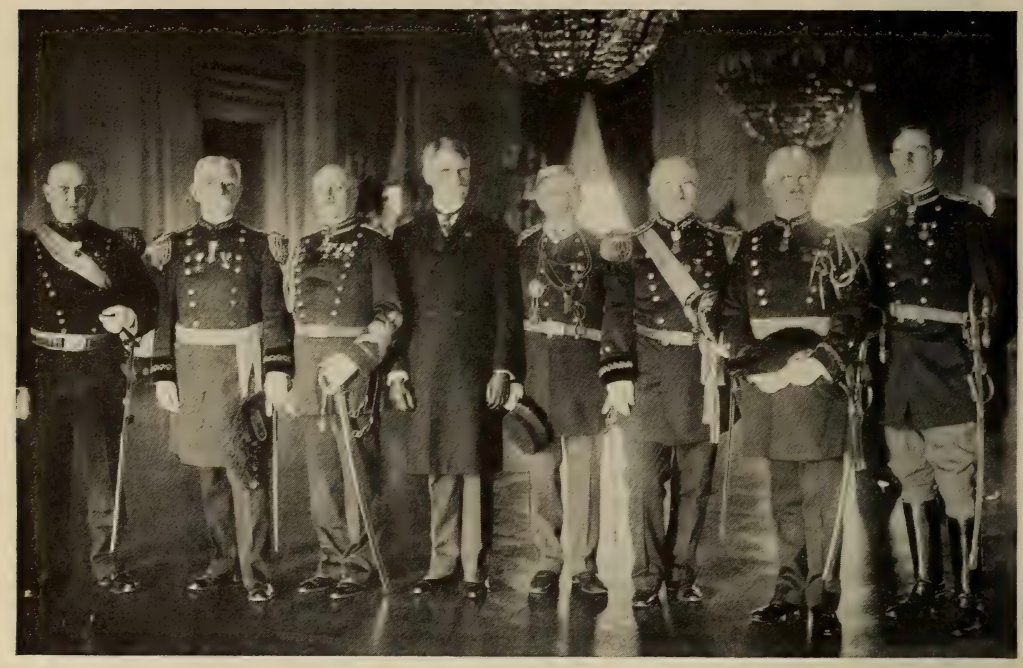
At ordinary times military men wear small sections of ribbon on the uniform for this purpose. These are simply short strips of the same design and width as the distinctive ribbon from which the medal itself is suspended, and they are known as service ribbons. The rule previously given, which prohibits the wearing of a decoration of inferior origin, applies also to service ribbons, since the principle is the same.

Lapel buttons are used with civilian clothes for the same purpose. They are made in a variety of forms—rosettes of silk ribbon, bow-knots of ribbon, metallic buttons similar to the well-known G. A. R. device, buttons in enameled colors, etc., each decoration, medal, and badge having its own particular design.

On evening clothes, both civilian and military, miniatures can be worn when the occasion is appropriate. These are replicas of the full-size medal and ribbon, but made on a scale of about one-half. They are therefore more dressy than a service ribbon, but not so ceremonial as the full-size medal, which furnishes the clue to the occasions when they should be worn.

Service ribbons are never worn on military evening clothes, as the wearing of such garments indicates a dress affair, even if it is not ceremonial, and service ribbons are out of place on dress clothes.

It is thus seen that, although the medals themselves are rarely worn, the possessor of one can always show that fact, either in uniform or civilian clothes, by wearing the proper substitute. It should further



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MEDAL-OF-HONOR MEN WHO WON DISTINCTION ON BATTLEFIELDS PRIOR TO THE WORLD WAR

It was during President Taft's administration that these officers were invited to the White House to take part in the ceremony of bestowing the Medal of Honor upon a new hero in the East Room. From left to right the Medal-of-Honor men are General Charles F. Humphrey, General John M. Wilson, Colonel Charles H. Heyl, General Theodore Schwan, Colonel Frederick Fuger, General W. H. Carter, General A. L. Mills, and Captain Gordon Johnston.

be noted that these substitutes are not in themselves decorations; they merely indicate that the wearer has received one, from which it follows that the wearing of the service ribbon or lapel button is nothing less than sailing under false pretenses, if the wearer does not really possess the corresponding medal or decoration.

LORD ROBERTS AND THE VICTORIA CROSS

Another important point is that no medal, decoration, or substitute should be worn unless the wearer possesses it in his own right; he must be the one whose services earned it to entitle him to wear it. On his death it becomes an heirloom to be kept by his family, but it should not be worn by any of them, and, similarly, in cases where a medal is presented to the nearest of kin because of the death of the one to whom the award was made, the person thus holding it has no right to wear it.

There was one notable exception to this general rule. Lord Roberts' only son, an officer in the British Army, was killed in the Boer War while engaged in an act of great heroism for which he was posthumously awarded the Victoria Cross. The decoration was duly presented to Lord Roberts, who was given express authority to wear it; but this permission was undoubtedly based on the fact that Lord Roberts had a Victoria Cross in his own right, earned by gallant action during the Indian mutiny; so this case cannot be considered as a precedent.

This incident was an exception to yet another universal rule, that the same decoration is never given twice to the same individual. Lord Roberts was the only man who was ever authorized to wear two Victoria Crosses. In the United

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THE DISTRICT OF COLUMBIA GAVE A SPECIAL MEDAL TO ITS RESIDENTS WHO SERVED IN THE WORLD WAR

The Secretary of War is seen pinning this medal on the first man in line, on July 4, 1919. The distribution was a feature of this year's Independence Day celebration in the National Capital, which culminated in the International Peace Festival, in which all the countries having diplomatic representatives in Washington participated.

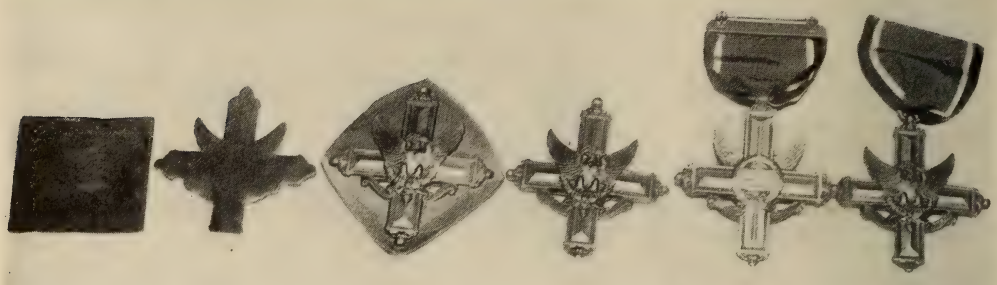
States no one has received two Medals of Honor, two Distinguished Service Crosses, two Distinguished Service Medals; nor in France two Croix de Guerre, etc. Instead of giving another on the performance of a second act justifying such an award, some special device is placed on the ribbon of the medal and on the service ribbon to show that the wearer has been decorated a second time with the same distinction. These devices vary with different countries and with different decorations and will be described in detail later.

THREE TYPES OF CITATIONS

A citation is an official announcement of appreciation for services performed. It may be in the form of an order issued from the headquarters of some unit (citation in orders), or in the official report of some commander (mentioned in dispatches), or as a special certificate. All are included under the general head of citation. Usually the particular service rendered is briefly recounted, giving date, place, and sufficient detail to enable the reader to form some idea of the circumstances.

A citation does not of itself carry any further reward. If a decoration is to be given, it is customary to include that fact in the citation if the officer issuing the citation has the authority to do so. If he has not, he may submit a recommendation to that effect, and if approved the award will be made by another citation issued by the commander taking the action. Thus there may be two or three citations for the same act.

The distinction between award and presentation should be clearly established. A citation which specifically bestows a personal decoration is the award; presen-



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HOW OUR DISTINGUISHED SERVICE CROSSES ARE MADE

In the upper illustration the metal-workers are seen pouring the melted bronze into molds. The first few crosses struck had the arms of the cross heavily decorated with oak leaves, but these were soon recalled and all subsequent crosses have been plain, as shown in the illustration in colors, number 4.

Below and to the left is shown the small square of bronze upon which the die is stamped by a hydraulic press exerting a pressure of from 100 to 250 tons to the square inch. The cross is cut out by machines and finished by hand, the progressive stages of manufacture being shown from left to right.

tation is when the decoration is actually received. The award is always to the individual who earned the decoration, even though he may have died in the meantime. Whenever possible, it is also presented to him and with considerable formality and ceremony, but this is not essential; presentation can be made to any one deputed to receive it.

In the case of a Service Medal the order announcing the qualifications for any particular medal is the award to all who are covered by the order. These medals are rarely presented with for-

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SPRAYING THE FINISHING LACQUER ON DISTINGUISHED SERVICE MEDALS AT THE PHILADELPHIA MINT

Six hundred of these medals have been awarded to Americans and to distinguished officers and government officials of countries associated with the United States in the War with Germany.

mality, but are issued to those entitled to them in the most convenient manner.

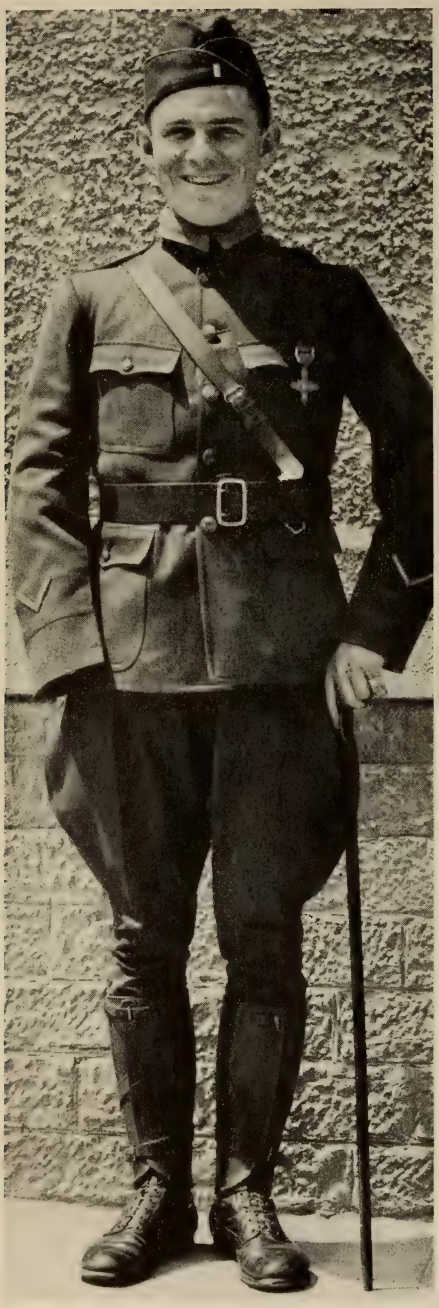
The word BAR in connection with medals refers to a small piece of metal to which the top of the suspending ribbon is fastened. It is sometimes covered by the ribbon; sometimes the ribbon is fastened to the back, leaving the bar visible. (See Nos. 32 and 34.) It is provided with a pin at the back for attachment to the coat. Occasionally the lower edge of the ribbon is also attached to a bar, and the medal suspended from this lower bar instead of directly by the ribbon. (See the Distinguished Service Medal, No. 7.) Clasps are sometimes called bars.

THE PROBLEM OF PRECEDENCE

Service ribbons can be either sewed on the coat or placed on a bar, covering the bar completely. It is incorrect to speak of the service ribbons themselves as "bars."

Medals and decorations, with but few exceptions, are worn on the left breast and in a carefully arranged order of precedence. The place of honor is to the right of the wearer, or nearest to the center line of the breast, and the highest decoration possessed is worn in that position. Others follow in the correct order of precedence, and then service medals according to the dates of the services rendered.

Foreign decorations are worn after all the decorations and medals bestowed by the wearer's government and in the order of the date of receipt. This rule is to avoid the embarrassments and complications which would certainly arise if any



AN EMPTY SLEEVE, A DISTINGUISHED SERVICE CROSS, A SMILE

While the Distinguished Service Cross was instituted primarily as a decoration for heroes of the World War, its award is not confined to them. In October, 1919, a brigadier general received the cross for an act of heroism at the seige of Cotta Pang Pang, Jolo, the Philippines, nearly sixteen years ago.

attempt were made to establish an order of precedence for the wearing of the decorations of different countries. There is only one exception to this rule and that is the case where a person has more than one decoration from the same country. Those particular decorations are worn in the relative order prescribed by that country. To illustrate: an American possessing both the Legion of Honor and the Croix de Guerre should wear them in that order, no matter which was received first, for that is the relative precedence established by France.

When the number of medals is too great to place them side by side in one line, some nations overlap them, so they can all be placed in one line, the ribbons usually being fastened to one long bar. Others, including the United States, place them in two or more lines, as required, overlapping the different lines; the medals proper must all be visible, but the ribbons of the second and third rows may be hidden.

Service ribbons are worn in the same place and in the same order as the decorations and medals they represent. They are never overlapped, but are placed in as many rows as necessary, with a small space between each row. Aviation badges are worn above the line of medals or service ribbons; all other badges below.

In some countries the primary decoration is worn at the throat, suspended from a ribbon around the neck. This is the case with our Medal of Honor, and it is considered a higher position than on the breast. The service ribbon, however, is worn on the breast with the others, but to the right of them all.

HOW FOREIGN DECORATIONS SHOULD BE WORN

The manner of wearing the insignia of the orders of foreign countries varies greatly, but a few general rules can be given, and, as many Americans are now members of such orders, they may be of interest.

Each order has a distinctive insignia, usually called a badge. This badge, while of the same general design throughout the order, differs in detail (usually in size or material) according to the class in the order.

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A MAN OF MARK AND MEDALS: SERGEANT DAN DALY, OF THE MARINES

Sergeant Daly may not be the most-decorated fighter in an American uniform, as is reported, but this photograph, taken upon the occasion of the bestowal of the French Médaille Militaire, proves that he "bears his blushing honors thick upon him." He won the Congressional Medal of Honor in China, in the Boxer Rebellion of 1900, and the Distinguished Service Cross in France with the Sixth Marines at Belleau Wood, where, after being wounded, he captured a German officer and fourteen men. In addition to the Medal of Honor, which is worn suspended on a ribbon around the neck, these decorations will be recognized: the French Médaille Militaire, the Distinguished Service Cross (No. 4), the Philippine Campaign Medal (No. 31), the China Relief Expedition Medal (No. 33), the Haitian Campaign Medal (No. 37), and the U. S. Marine Corps Good Conduct Medal (No. 27), with bars for two additional enlistment periods of four years each and recommendations for "fidelity, zeal, and obedience."

U. S. Official Photograph

THE COMMANDER-IN-CHIEF OF THE AMERICAN EXPEDITIONARY FORCES DECORATING A CHATEAU-THIERRY HERO

The recipient of the honor is a private. Valor is not the prerogative of place or rank.

Members of the highest class wear the badge suspended from a sash, called a "broad ribbon," which is worn over one shoulder and under the other arm, so that the badge hangs near the hip. A few orders have a gold collar, from which the badge is suspended on very special occasions.

In the second and third classes the badge is worn at the neck, like our Medal of Honor. In the lower classes it is worn on the left breast, the same as any ordinary medal.

In addition to the badge, the first and second classes are usually characterized by "stars," worn on the breast below the line of medals. These are large plaques without ribbons, being fastened directly to the coat. They are worn more often than the badges, particularly by a member of the first class of any order, and when he is in the first class of more than one order the star is the only means of denoting them, as he is manifestly unable to wear more than one broad ribbon at a time.

Service ribbons are worn for these orders just as for any other decorations. In some countries devices are placed on the service ribbons to show the class; in others no such distinction is made.

THE MEDAL OF HONOR

In nearly all the countries which are included under the term of Great Powers decorations for distinguished service rendered to the State take precedence over those awarded for acts of valor, this on the theory that the services of statesmen, generals, and other public men high in the councils of the nation are of more importance, and therefore deserve higher reward than do individual acts of gallantry on the battlefield.

The exceptions to this rule are Great Britain and the United States, in both of which countries the primary valor decoration takes precedence over all others, and it is worthy of note that the standards set for these two rewards are not only higher than in any other country, but they are also more rigorously applied.

Awards of the Victoria Cross and of the Medal of Honor are so rare and so jealously guarded that they are undoubtedly the two highest honors which can be bestowed for valor, and this may serve to explain why they are placed first in their respective countries, contrary to the custom of all others. An additional resemblance is that neither is ever bestowed on a foreigner. The Victoria Cross is limited to British subjects by royal decree; in the case of the Medal of Honor, there is no law prohibiting its award to a foreigner, but it has never been done, and custom is sometimes more potent than acts of Congress.

The Medal of Honor was instituted by act of Congress in 1861 and was the earliest American decoration. However, it applied at that time only to enlisted men of the Navy (No. 25). In the following year enlisted men of the Army were included (No. 6), and by an act approved March 3, 1863, its provisions were extended to include officers in the Army, but naval officers were not eligible for this decoration until 1915.

The conditions under which the Medal of Honor may be awarded have been changed from time to time by various laws. The first, that of 1861, authorized the bestowal upon such enlisted men of the Navy "as shall most distinguish themselves by their gallantry in action and other seamanlike qualities during the present war." The act of the following year, which applied to the Army, read the same, except that "seamanlike" was replaced by "soldierlike" and the war was termed an "insurrection."

In its original conception, therefore, the Medal of Honor was not limited to heroism, much less to heroism in action, as seamanlike or soldierlike qualities could be rewarded with this medal. However, this did not last long. The Army conditions were changed in 1863, so as to bestow the medal on those who "have most distinguished or may hereafter most distinguish themselves in action." This absolutely limited it to services in action, and the conditions were made more stringent later, when the present wording was adopted, as follows:

"The President is authorized to present, in the name of Congress, a Medal of Honor only to each person who, while an officer or enlisted man of the Army, shall hereafter, in action involving actual conflict with an enemy, distinguish himself conspicuously by gallantry and intrepidity at the risk of his life, above and beyond the call of duty."

The application of these conditions has placed the Medal of Honor upon the high plane which it enjoys today.

ARMY AND NAVY MEDALS OF HONOR NOW ON THE SAME FOOTING

The Navy medal was changed in 1862 to bestow it on "seamen distinguishing themselves in battle or for extraordinary heroism in the line of their profession." This eliminated "seamanlike qualities" and confined it to heroism, but it will be noted that it permitted the granting of the reward for heroism at other times than in action, and a number of Medals of Honor have been so given in the Navy. This condition lasted until February, 1919, when the wording of the Army conditions was adopted for the Navy also, so that the two medals are now on exactly the same footing.

The intention of the lawmakers was to reward a heroic act which was not di-

Photograph by Paul Thompson

FOUR ACES, HOMEWARD BOUND, WEARING TROPHIES OF WAR WON IN THE AIR

All of these airmen are members of the Third Army (note the shoulder insignia, No. 41) and wear the badge of an aviator above their decorations for valor. Each has received the Distinguished Service Cross from his own government as well as war crosses, palms, and stars awarded by our allies.

rectly ordered and which was of such a character that no one would have been subject to censure for failing to attempt it. This interpretation has been very generally adhered to in making awards of the Medal of Honor, so that it is never given except under circumstances of the most unusual character.

To illustrate this: two citations from War Department orders awarding the Medal of Honor will be given in full. The selections are made not only to show the character of the deed required, but also to illustrate what an official citation is. Both cases are well known, for columns have been written in the papers and magazines about the "Lost Battalion" of the Argonne and about Sergeant York's wonderful exploit. Manifestly these cannot be described in full in an order of award and these official citations will show the extent of the "boiling-down" process:

CHARACTERISTIC CITATIONS AWARDING THE MEDAL OF HONOR

"By direction of the President, under the provisions of the act of Congress approved July 9, 1918, the medal of honor was awarded in the name of the Congress, on November 22, 1918, to the following-named officers and enlisted men for the acts of gallantry set forth after each person's name:

"CHARLES W. WHITTLESEY, major (now lieutenant-colonel), 308th Infantry. For conspicuous gallantry and intrepidity above and beyond the call of duty in action with the enemy northeast of Binarville, in the forest D'Argonne, France,

October 2-7, 1918. Although cut off for five days from the remainder of his division, Maj. WHITTLESEY maintained his position, which he had reached under orders received for an advance, and held his command, consisting originally of 463 officers and men of the 308th Infantry and of Company K of the 307th Infantry, together in the face of superior numbers of the enemy, during the five days. Maj. WHITTLESEY and his command were thus cut off, and no rations or other supplies reached him, in spite of determined efforts which were made by his division. On the fourth day Maj. WHITTLESEY received from the enemy a written proposition to surrender, which he treated with contempt, although he was at that time out of rations and had suffered a loss of 50 per cent in killed and wounded of his command and was surrounded by the enemy."

"ALVIN C. YORK (serial No. 1910421), corporal, Company G, 328th Infantry. For conspicuous gallantry and intrepidity above and beyond the call of duty in action with the enemy near Chatel-Chéhéry, France, October 8, 1918. After his platoon had suffered heavy casualties and three other noncommissioned officers had become casualties Corpl. YORK assumed command. Fearlessly leading seven men, he charged, with great daring, a machine-gun nest which was pouring deadly and incessant fire upon his platoon. In this heroic feat the machine-gun nest was taken, together with 4 officers and 128 men and several guns. Home address, Mrs. Mary Brooks York, mother, Pall Mall, Tenn."

For a second act warranting the award of the Medal of Honor a bronze oakleaf cluster is bestowed by the Army. This cluster is worn on the ribbon of the medal and a miniature thereof on the service ribbon. (See Distinguished Service Cross service ribbon, page 505.) It was adopted for this purpose in 1918 and was designed by the sculptor, Mr. Herbert Adams, of the Commission of Fine Arts. However, no Medal of Honor has yet been decorated by the addition of an oakleaf cluster. No device has yet been selected by the Navy in lieu of a second award.

THE DISTINGUISHED SERVICE MEDAL

The Distinguished Service Medal (No. 7) can be awarded by the President to "any person who, while serving in any capacity with the Army of the United States, shall distinguish himself or herself by specially meritorious service to the government in a duty of great responsibility." The Distinguished Service Medal for the Navy (No. 24) is awarded under exactly the same conditions as for the Army and was established by act of Congress in February, 1919. The Distinguished Service Medal ranks next to the Medal of Honor.

It should be noted that the services to be rewarded with this decoration do not have to be rendered at the front, much less in action, the requirement of great responsibility being the governing factor. It was intended to be used in the same way as the Legion of Honor of France and other similar orders with which European countries reward the great leaders of their military and naval forces.

On the occasion of the first presentations in Washington, the Secretary of War spoke as follows:

"The institution of the Distinguished Service Medal in the Army of the United States is in recognition of the fact that in an army of modern times all the fighting is not done on the fighting front, but that those who served by way of preparing others and those whose services were specially necessary in association with military operations are equally serving in the cause.

"This medal is also awarded to civilians, because under conditions of modern warfare it has been discovered, of course, that the civilian side is inseparably connected with the actual fighting side; that modern war engages all the power of the nation—military, industrial, financial and moral.

"The Distinguished Service Medal is, therefore, awarded, not for technical military or combat service, but is awarded to those who in positions of great responsibility have conferred distinguished service upon their country through the mili-

Photograph by Paul Thompson

A NEW JERSEY DOUGHBOY WEARING THE AMERICAN MEDAL OF HONOR, THE FRENCH CROIX DE GUERRE WITH PALMS, AND A MONTENEGRIN DECORATION

Note the Second Division insignia (No. 43) on his helmet. The design was evolved by a truck driver. This division led all others in the number of Distinguished Service Crosses awarded.

tary establishment and in association with it."

THE FIRST RECIPIENTS OF THE DISTINGUISHED SERVICE MEDAL IN AMERICA

At that time the Secretary was presenting the medal to the following officers whose services, with one exception, had been rendered entirely on this side:

GENERAL MARCH, the Chief of Staff of the Army, adviser of the Secretary of War, and who, under the authority of the Secretary, virtually controlled the entire Army. He is the one exception referred to, as he was Chief of Artillery in the A. E. F. until March, 1918.

GENERAL GOETHALS, of the General Staff, who had complete charge of the program for the procurement of supplies for the entire army.

GENERAL JERVEY, of the General Staff, who as Director of Operations was responsible for the preparation and execution of the plans for the organization of personnel and the movement of the troops to France.

GENERAL CROWDER, Provost Marshal General, under whose direction the Selective Service Act was put into operation and the draftees distributed under instructions coming from the Chief of Staff.

GENERAL HINES, Chief of Embarkation, who organized and administered the embarkation service, which carried all our troops overseas and returned them.

GENERAL BLACK, Chief of Engineers, who administered the entire military railway service.

GENERAL GORGAS, the Surgeon General.

It can readily be seen that the services of these seven officers and those serving under them were as important in the prosecution of the war as any which were rendered on the fighting front. The troops could not have been mobilized, equipped, or transported to France unless this work had been performed properly in Washington. On the other hand, the Secretary's remarks should not be interpreted as meaning that this medal is given *only* to those who served in the rear or on this side of the Atlantic. The great majority of those awarded have been to members of the A. E. F., to the commanding generals and staff officers who have actually planned and executed the different campaigns and battles.

GENERAL PERSHING'S CITATION

The following is the citation awarding this medal to General Pershing:

"By direction of the President, under the provisions of the act of Congress approved July 9, 1918, the distinguished service medal was awarded on October 21, 1918, to General JOHN JOSEPH PERSHING, commanding general, American Expeditionary Forces, as a token of the gratitude of the American people to the commander of our armies in the field for his distinguished services, and in appreciation of the success which our armies have achieved under his leadership."

The same order also conferred this medal on Marshal Foch, the Commander-in-Chief of the Allied armies; Marshal Joffre, the victor of the first battle of the Marne; Field Marshal Sir Douglas Haig, the Commander-in-Chief of the British armies; General Petain, the Commander-in-Chief of the French armies; Lieutenant General Diaz, the Chief of Staff and virtual commander of the Italian armies; and Lieutenant General Gillain, the Chief of Staff of the Belgian Army, King Albert himself being the Commander-in-Chief. These were the first Distinguished Service Medals awarded, the first presentation being to Marshal Foch.

DISTINGUISHED SERVICE MEDAL AWARDED TO A WOMAN

It should also be observed that this decoration can be awarded to women, and the following is a citation illustrating this:

"By direction of the President and under the provisions of the act of Congress approved July 9, 1918, the distinguished service medal was awarded posthumously to Miss JANE A. DELANO for exceptionally meritorious and conspicuous service as director, Department of Nursing, American Red Cross. She applied her great energy and used her powerful influence among the nurses of the country to secure enrollments in the

American Red Cross. Through her great efforts and devotion to duty eighteen thousand seven hundred and thirty-two nurses were secured and transferred to the Army Nurse Corps for service during the war. Thus she was a great factor in assisting the Medical Department in caring for the sick and wounded."

The illustrations show (see Nos. 7 and 24) that the ribbons of the Army and Navy Distinguished Service Medals are not the same, and this is the only exception to the general rule, as in all other cases the Army and Navy have identical ribbons, although the designs of the medals are different.

The same bronze oak-leaf cluster that is used with the Medal of Honor for a second award is also applicable to the Distinguished Service Medal (see Distinguished Service Cross service ribbon illustration, page 505); but, as in the case of the valor decoration, no such award has yet been made.

DISTINGUISHED SERVICE CROSS

The Distinguished Service Cross (No. 4) is purely an Army decoration and is bestowed as a reward for individual acts of "extraordinary heroism in connection with military operations against an armed enemy" not warranting the award of the Medal of Honor.

Several bronze oak-leaf clusters have been bestowed in lieu of a second award, as instanced by the following citations:

"By direction of the President, under the provisions of the act of Congress approved July 9, 1918, the distinguished-service cross was awarded by the commanding general, American Expeditionary Forces, for extraordinary heroism in action in Europe, to the following-named officers and enlisted men of the American Expeditionary Forces:

. . . . . .

"JULIUS AARONSON, private, Company G, 109th Infantry. For extraordinary heroism in action near Apremont, France, October 7, 1918. When his company was suddenly fired upon by enemy machine guns during an advance and forced to seek shelter, Pvt. AARONSON remained in the open under a continuous shower of machine-gun bullets, caring for eight wounded men, dressing their wounds and securing their evacuation.

"For the following act of extraordinary heroism in action near Apremont, France, on the same date, Pvt. AARONSON is awarded an oak-leaf cluster to be worn with the distinguished-service cross: Having become separated from his company and wounded by a bullet which pierced his helmet, he advanced alone on a machine-gun nest across an open field in broad daylight, killed the gunner and captured two of the crew, whom he pressed into the service of carrying wounded."

FOUR LEAVES ON AN AIRMAN'S CROSS

The experiences of Lieutenant Hunter, of the Air Service, as given in the official citations, form most interesting reading:

"FRANK O'D. HUNTER, first lieutenant, Air Service, pilot, 103d Aero Squadron. For extraordinary heroism in action in the region of Ypres, Belgium, June 22, 1918, Lieut. HUNTER, while on patrol, alone attacked two enemy biplanes, destroying one and forcing the other to retire. In the course of the combat he was wounded in the forehead. Despite his injuries he succeeded in returning his damaged plane to his own aerodrome.

"A bronze oak leaf, for extraordinary heroism in action in the region of Champey, France, September 13, 1918. He, accompanied by one other plane, attacked an enemy patrol of six planes. Despite numerical superiority and in a decisive combat, he destroyed one enemy plane and, with the aid of his companion, forced the others within their own lines.

"A bronze oak leaf, for extraordinary heroism in action near Verneville, France, September 17, 1918. Leading a patrol of three planes, he attacked an enemy formation of eight planes. Although outnumbered, they succeeded in bringing down four of the enemy. Lieut. HUNTER accounted for two of these.

"A bronze oak leaf, for extraordinary heroism in action in the region of Linydevant-Dun, France. While separated from his patrol he observed an allied patrol of seven planes (Breguets) hard pressed by an enemy formation of 10

Photograph by International Film Service

HIS IS A SILVER VICTORY BUTTON

And he bought it by suffering and sacrifice for his country and ours on the fields of France. Each of the 4,500,000 Americans who receives the Victory Medal will also get a Victory Button, to be worn with his civilian attire—a silver button if he has been wounded, otherwise one of bronze.

planes (Fokker type). He attacked two of the enemy that were harassing a single Breguet and in a decisive fight destroyed one of them. Meanwhile five enemy planes approached and concentrated their fire upon him. Undaunted by their superiority, he attacked and brought down a second plane.

"A bronze oak leaf, for extraordinary heroism in action in the region of Bantheville, France. While on patrol he encountered an enemy formation of six monoplanes. He immediately attacked and destroyed one enemy plane and forced the others to disperse in confusion."

It will be noticed that the expression "oak leaf" is used in this citation instead of "oak-leaf cluster," this because the original design was an oak leaf, but it was subject to such criticism from an artistic standpoint that the present design, which is a true cluster of oak leaves and acorns, was adopted. Many oak leaves were issued; they should all be exchanged for the new clusters.

It must not be inferred from these two citations that awards of the cluster are always given in the same order as the original award. That happened in these particular cases, but it is the exception rather than the rule. The following is a citation for the award of a cluster to the well-known Captain Rickenbacker:

"Edward V. Rickenbacker, captain, 94th Aero Squadron, Air Service. In addition to the distinguished service cross and bronze oak leaf heretofore awarded Capt. Rickenbacker, which awards were published in General Orders No. 121, War Department, 1918, he is awarded an oak-leaf cluster for the following act of extraordinary heroism in action near Billy, France, September 26, 1918: While on voluntary patrol over the lines he attacked seven enemy planes (five type Fokker, protecting two type Halberstadt). Disregarding the odds against him, he dived on them and shot down one of the Fokkers out of control. He then attacked one of the Halberstadts and sent it down also."

This decoration also can be awarded to women, as illustrated by the following:

"By direction of the President, under the provisions of the act of Congress approved July 9, 1918, the distinguished-service cross was awarded February 27, 1919, to Miss Beatrice Macdonald, Reserve nurse, Army Nurse Corps, for extraordinary heroism while on duty with the surgical team at the British Casualty Clearing Station No. 61, British Area, France. During a German night air raid she continued at her post of duty caring for the sick and wounded until seriously wounded by a German bomb, thereby losing one eye."

THE NAVY CROSS

The Navy Cross (No. 22) was authorized by the same law that established the Navy Distinguished Service Medal, and it can be awarded to any one in the naval service who distinguishes himself by extraordinary heroism or by distinguished service not justifying the award of the Medal of Honor or the Distinguished Service Medal.

The difference between this and the Distinguished Service Cross of the Army should be noted. The Army decoration is given only for heroism in action. The Navy Cross is much broader in scope and, in addition to heroism in action, it includes any other distinguished service, not only in time of war but also in peace, in the theater of hostilities or elsewhere. It is a junior decoration to both the Medal of Honor and the Distinguished Service Medal.

These three naval decorations cover the whole possible gamut of services which should be rewarded. The Medal of Honor is the appropriate reward for extraordinary valor in action, the Distinguished Service Medal for any other specially distinguished services, and the Navy Cross for any meritorious service, of whatever character, of a lesser degree.

CERTIFICATE OF MERIT

The Certificate of Merit (No. 5) is our oldest reward for meritorious services, having been established by law March 3, 1847. It is a certificate, formerly signed by the President himself, which was issued to enlisted men only. It was not a decoration until 1905, when a medal was

designed to be worn by the holder of the certificate to indicate possession of it, and in this it differs from all our other decorations, the certificate being the real reward and the medal only the visible evidence thereof.

Any specially meritorious services rendered by an enlisted man made him eligible for this certificate, whether it was an act of gallantry in action not justifying the award of the Medal of Honor or a deed of heroism in time of peace, such as saving life or property from fire, the sea, or floods, at the risk of his life, or for any other services rendered which, in the judgment of the President, deserved a reward. It therefore corresponded very closely to the Navy Cross, except that its issue was confined entirely to enlisted men.

The first Certificate of Merit was awarded to Private John R. Scott, Company B, Second Dragoons, for heroism at the battle of Cerro Gordo, in the Mexican War, and a total of 545 were given for services rendered in the Mexican War. It is a reasonable inference that quite a number of these would have been awarded the Medal of Honor instead of the Certificate had that decoration been in existence at that time. The Navy was never included in this reward.

In July, 1918, Congress abolished the Certificate of Merit and directed that all enlisted men then holding one should exchange it for a Distinguished Service Medal. It is a pity that it should have been found necessary to do away with our oldest reward, one which had been in use for seventy-one years and was associated with the Mexican, Civil, and Spanish Wars, with the Indian Campaigns and the Philippine Insurrection.

AMERICA'S UNIQUE CITATION STARS

Every officer or enlisted man who is cited in orders for gallantry in action, under conditions not warranting the award of a higher decoration, is entitled to wear a silver star, 3/16 inch in diameter, on the ribbon of the medal for the campaign in which the citation was given and on the corresponding service ribbon. (See Victory service ribbon illustration, page 505.) No other nation has anything corresponding to this star, so it is a unique feature in decorations. It was instituted in July, 1918, by act of Congress.

The conditions should be clearly understood. In the first place, the citation must be in orders issued from the headquarters of a force commanded by a general officer of the United States Army; secondly, it must be for gallantry in action; and, finally, it cannot be worn if a Medal of Honor, Distinguished Service Medal, or Distinguished Service Cross is given for the same act. These are requirements of law and therefore cannot be disregarded.

No specific award of the star is made: the order citing the individual is itself the award and constitutes all the authority needed for wearing the star, provided the three requisite conditions are fulfilled. There can never be any question regarding the first and third. However, the second condition may require decision.

THE STAR AS AN INDIVIDUAL DECORATION

Many citations have been published in orders praising entire units for gallantry in action; nevertheless, citation stars are not authorized in such cases. The star is an individual decoration and can only be worn for individual services; gallantry on the part of an entire unit is appropriately rewarded by a decoration for the unit as a whole rather than for the individuals composing it.

The citation star is not limited to the World War. It can be worn for suitable citation in any war, on the proper ribbon. Formerly it was not the custom in our country to issue such orders; in fact, at one time the War Department, in an official communication, deprecated the publication of orders in praise of living officers. It was considered perfectly proper in reports, but not in orders which are made public; consequently very few citations in orders were made prior to the European War.

THE VICTORY MEDAL

During the spring of 1918, while hostilities were still at their height, the different allied and associated nations agreed to adopt a medal which would be the same for all, to commemorate the great war.

This plan has two advantages: In the first place, it is symbolical of the union

and solidarity of purpose which animated the countries fighting against Germany and her allies; secondly, it obviates the necessity of following the practice of exchanging service medals.

In previous wars it had been customary for nations to bestow their war medals on the personnel of their allies who were attached to them, or associated with them, in different campaigns and engagements. The immensity of the operations in this war, the millions of soldiers engaged therein, and the intermingling of large units under one command, all pointed to the impossibility of such a procedure in this instance. But by the adoption of a medal, the same for all, it would be unnecessary, since no matter in what army a man served the medals would be alike.

VICTORY MEDALS WILL DIFFER; RIBBON TO BE IDENTICAL

In order to carry this plan into execution, an interallied commission met in Paris after the armistice. This commission found that it was impracticable to adhere strictly to the original plan to have the medal identical for all, as it would have required the submission of designs from artists of all the nations involved, with a critical examination by a special commission of artists in order to select the most appropriate and most artistic, and there was not sufficient time to go into such detail. The armies were being demobilized and the soldiers had no desire to wait for years before receiving their medals; so it was decided to have an identical ribbon, but allow each country to design its own medal according to general specifications which were drawn up by the commission.

In this way the medals, while not identical, will follow the same general design, and the artists of each country will have the opportunity of executing the medals for their own soldiers. The competition is keen, as every nation is desirous of having the most artistic production, and the result should be a collection of great beauty.

The name of this medal in all countries, as determined by this commission, is the Victory Medal. The ribbon is a double rainbow, having the red in the center and with a white thread on each edge. It symbolizes the dawn of a new era of calm after the storm. It was developed in France under the immediate direction of the commission, and when a satisfactory ribbon was produced a piece was sent to each of the allied countries as a standard sample.

SPECIFICATIONS FOR ALL VICTORY MEDALS

The specifications of the medal (see illustration, page 464) are as follows:

To be bronze, 36 mm. (1.4 inches) in diameter, and suspended from the ribbon by a ring, the same as most of our medals. On the obverse a winged Victory, standing, full length and full face. On the reverse the inscription "The Great War for Civilization," in the language of the country concerned, and either the names or the arms of the allied and associated nations.

By the terms of the interallied agreement, this medal will be awarded only to combatants. It is not for general distribution to all who participated in war work. In France, for example, almost every male was mobilized as a soldier, but great numbers did no real military work, being utilized in the manufacture of munitions, in agricultural pursuits, on the railroads, and other similar service which was essential to carry on the war, but which could not be considered as military. The medal cannot be awarded to them, although they were technically members of the French Army.

We had no corresponding class in our Army and Navy; therefore our Victory Medal will be given to all the members of those two services who served on active duty during the war; they are all considered combatants in this connection. This consideration also decided the question as to which of the nations should appear on the reverse of the medal. Under the specifications, as already set forth, it would have been permissible to have included all those that declared war against Germany, or even all those who suspended diplomatic relations, but a number of these did not actually participate in the fighting and therefore had no combatants. As a result, it has been decided that the only nations to be represented on the reverse of the medal will be those which actually took part in hostile oper-

ations by sending troops or ships to the theater of war.

The following is a list of such nations, arranged in the order of their entry into the War: Serbia, Russia, France, Belgium, Great Britain, Montenegro, Japan, Italy, Portugal, Rumania, Greece, United States, China, and Brazil.

As already narrated earlier in this article, a system of clasps was adopted for this medal, and to designate the possession of a battle clasp a small bronze star is worn on the service ribbon. (See service ribbon illustration, page 505.) This is a new departure in decorations. The British have used clasps for more than a hundred years, but they have never indicated them on the service ribbon. A man may have a dozen with his medal or none, the service ribbon is the same; so this wearing of small bronze stars on our service ribbon to denote the possession of battle clasps is an innovation. As the medal itself is seldom worn, while the service ribbon is worn frequently, it gives more credit for services performed.

In accordance with the general principle that senior decorations are to the right, silver citation stars should be worn to the right of bronze stars on the service ribbon.

HOW SHOULDER INSIGNIA CAME ABOUT. (SEE NUMBERS 39 TO 119, INCLUSIVE)

In the summer of 1918 the War Department received a communication from the commanding general, Port of Embarkation, Hoboken, reporting that all members of the Eighty-first Division, at that time going through the port on their way to France, were wearing a "wildcat" in cloth on the arm, and requesting information regarding the authority for this device.

At that time troops were moving rapidly, more than 300,000 a month, which is an average of less than three days for a division, and by the time the answer came from the War Department to the effect that no authority existed for the "wildcat" the entire division had departed.

On arrival of this division in France difficulties were at once encountered. The existence of the device was reported to General Headquarters and the Commanding General was directed to remove the insignia. He protested, saying that by its silence the War Department had tacitly authorized it; that it was most desirable, in order that the officers might readily know the men of the division; and, finally, that it was highly prized by the personnel and therefore was a great help toward maintaining and improving the morale of the command.

HELPED MEN TO REASSEMBLE

It so happened that General Headquarters had been studying the question of the identification of units in battle. Experience had shown that some method was necessary for quickly reassembling troops after an offensive. Organizations became confused, and after an advance they are almost inextricably mixed. To reassemble under their own officers rapidly is an important point.

The British had adopted the system of cloth insignia, placed usually on the back just below the collar, the designs being of different shapes and colors, so arranged that the men would assemble under the nearest officer having insignia like their own. In this way the desired reorganization was rapidly effected.

The "wildcat" of the Eighty-first Division seemed to offer a solution of the problem, and as a result it was authorized and the commanding generals of all combat divisions in France were at once directed to select insignia for their divisions. This was later extended to include all the different organizations of the A. E. F., on account of the effect it had on the morale of the troops.

Inasmuch as these insignia were considered purely for use at the front, they were confined entirely to the A. E. F. The War Department did not adopt any except for the oversea couriers who plied between Washington and General Headquarters. Consequently, only organizations which were in France have been granted permission to wear shoulder insignia. The divisions numbered from nine to twenty, inclusive, never left the United States, although several of them selected insignia which would undoubtedly have been approved upon arrival overseas. Illustrations of these (Nos. 50 to 56, inclusive) are here given, but it should be borne in mind that they have never been officially authorized.

AMERICAN DECORATIONS AND INSIGNIA OF HONOR AND SERVICE

THE following paragraphs epitomize the history of each of the medals, decorations, ribbons, and organization shoulder insignia authorized by the United States Government to be worn by its uniformed forces and by civilians who have been honored for signal services rendered to their country. The number preceding each paragraph refers to the companion number under the accompanying illustrations in color.

ARMY MEDALS

1. MEDAL OF HONOR.—This, the highest decoration awarded by our Government, can be given to any officer or enlisted man who shall "in action involving actual conflict with an enemy distinguish himself conspicuously by gallantry and intrepidity, at the risk of his life, above and beyond the call of duty." It was first authorized by act of Congress in 1861 and is presented "in the name of Congress"; hence the frequent allusion to it as the "Congressional Medal." It is worn suspended from a ribbon passed around the neck, under the collar. Prior to the World War, 2,631 had been awarded since the establishment of the decoration; during the war 79 have been bestowed.

Originally the Army had the same design (No. 6) as the Navy (see No. 25). In 1904 the Army adopted the present design, which bears the head of Minerva, the Goddess of War. On the reverse of the bar is the inscription "The Congress to" and on the reverse of the medal the rank, name, and organization of the recipient and the place and date of the act for which the medal is awarded. The original ribbon consisted of thirteen vertical stripes of red and white with a narrow band of blue across the top. This was changed in the early seventies and again in 1904, when the new design was adopted. (For further particulars see preceding article.)

2. MEDAL OF HONOR ROSETTE is worn on civilian clothes to denote possession of the Medal of Honor, by both Army and Navy holders. It is of silk ribbon, light blue, with white stars, like the ribbon of the Medal.

3. VICTORY BUTTONS.—These are for wear in the lapel of civilian clothes to denote the possession of the Victory Medal and are to be awarded under the same conditions as the medal. A silver button is given to men who were wounded in action; all others have one in bronze. It was designed by the sculptor, Mr. A. A. Weinman, of New York City, under the supervision of the Commission of Fine Arts, and applies to Army, Navy, and Marines.

4. DISTINGUISHED SERVICE CROSS.—This decoration was instituted by Executive Order in January, 1918, and confirmed by Congress in the following July and was designed by Captain Aymar Embury, Engineer Reserve Corps, from sketches by Col. J. R. M. Taylor. The first few struck had the arms of the cross heavily decorated with oak leaves, but these were recalled and all subsequent crosses were plain, as shown in the illustration. This is awarded for individual acts of extraordinary heroism in connection with military operations against an armed enemy not warranting the award of a Medal of Honor. More than 5,000 have been awarded. (For further particulars see preceding article.)

5. THE CERTIFICATE OF MERIT BADGE was authorized in 1905, to denote the possession of a Certificate of Merit. It has now been abolished by act of Congress, all holders of it exchanging it for a Distinguished Service Medal. It was awarded only to enlisted men for meritorious services rendered. (For further particulars see preceding article.)

6. OLD MEDAL OF HONOR.—(See No. 1 and No. 25.)

7. DISTINGUISHED SERVICE MEDAL.—This decoration was established by Executive Order in January, 1918, and confirmed by Congress in the following July. It is awarded for specially meritorious services in a position of great responsibility. Like the Distinguished Service Cross (No. 4), it was designed by Captain Aymar Embury, Engineer Reserve Corps, and the plaster model from which the die was made was the work of Corporal Gaetano Cecere, Company B, Fortieth Engineers. About 600 have been awarded. (For further particulars see preceding article.)

8. THE PORTO RICAN OCCUPATION MEDAL was awarded to all who served in the Army of Occupation in Porto Rico, between the cessation of hostilities, on August 13, and the signing of the Treaty of Peace with Spain, December 10, 1898, by the terms of which treaty Porto Rico became a possession of the United States. The design is the same as that of the Spanish Campaign Medal, with an appropriate change of inscription, and the colors of the ribbon are the reverse of those of the Cuban Occupation ribbon.

9. THE CIVIL WAR MEDAL was awarded for service rendered in the Army during the Civil War. The head of Lincoln is on the obverse, and the inscription records one of his famous sayings, "With malice toward none, with charity for all." On the reverse is a wreath inclosing the inscription, "The Civil War, 1861-1865." The significance of the blue and gray ribbon needs no explanation.

10. THE INDIAN CAMPAIGN MEDAL commemorates the various campaigns against Indian tribes since 1865. The list of these is long and they occurred all over the western portion of the country. The last for which the medal was given was the expedition against

the Chippewas, in northern Minnesota, in October, 1898. On the obverse is a mounted Indian. The reverse shows an eagle on a trophy of arms and flags, above the words "For service." The inscription "United States Army" appears around the upper half, with thirteen stars round the lower edge.

This reverse is used for the majority of the Army service medals; the exceptions will be mentioned. The original ribbon was all red, suggestive of the Indian, but when our troops began to appear in France, in the summer of 1917, it was found that the French mistook it for the ribbon of the Legion of Honor; not only was the color the same, but it was also worn to the right of all others (the same as a Frenchman wears the Legion of Honor), except the very few who also had the Medal of Honor. As we did not wish to sail under false pretenses, the two black stripes were added.

11. The Spanish Campaign Medal was awarded to officers and men who served in the theater of operations during the Spanish War. In Cuba this required service prior to the surrender of General Toral, on July 17; in Porto Rico, prior to August 13, the date of the surrender of Ponce; and in the Philippines, prior to August 16, when the Spaniards surrendered Manila. The castle on the obverse is similar to that on the Spanish coat of arms. The first ribbon was yellow and red, the Spanish colors, and the arrangement was the same as on the Spanish merchant flag. In 1913, out of deference to the sensibilities of a now friendly country, the red stripes were changed to blue.

12. The Cuban Occupation Medal commemorates the military occupation of that island, which commenced with the surrender of the Spanish forces at Santiago and terminated on May 20, 1902, when our troops evacuated, leaving the new Cuban Government in control. It was given to all who served in the Army of Occupation during that period. On the obverse is the coat of arms of the Cuban Republic.

13. The Philippine Campaign Medal was given for services rendered in the Philippine Islands during the insurrection, which commenced on February 4, 1899, and lasted officially until the military government was superseded by a civil government, July 4, 1902. In the southern islands hostilities continued for a longer time and eligibility for the medal in that vicinity extends to the end of 1904. In addition, those who took part in the Moro campaign in Jolo and Mindanao in 1905, in the engagement on Mt. Bud-Dajo in 1906, and the Bagsak Campaign in Jolo of 1913 (commanded by General Pershing) are also entitled to this medal. On the obverse is a coconut palm, representing the tropical character of the Philippines, with a Roman lamp on one side, symbolical of the enlightenment of the islands under American rule, and the scales of justice on the other side, indicating the nature of that rule.

14. The Philippine Congressional Medal was established by Act of Congress in 1906 to reward those officers and men stationed in the Philippine Islands who had volunteered for the War with Spain and were therefore entitled by law to their discharge when the Treaty of Peace with Spain was ratified, on April 11, 1899, but who nevertheless voluntarily remained in the service to help suppress the insurrection in the islands. On the obverse is a color sergeant carrying the American flag, with a color guard of two soldiers. On the reverse is the inscription "For Patriotism, Fortitude and Loyalty," within a wreath composed of a pine branch on one side and a palm branch on the other.

15. The Spanish War Service Medal was given to all officers and men who served ninety days in the war with Spain and who were not eligible to receive the campaign medal for that war. This medal recognizes the fact that the entire personnel of the Army contributed to the success of that war, whether they served with the expeditionary forces or in the service of supply at home. The obverse was designed by Col. J. R. M. Taylor, U. S. A., retired, and shows a sheathed Roman sword hanging on a tablet bearing the inscription "For Service in the Spanish War." The sheathed sword symbolizes the fact that the wearer, although in the Army, did not participate in the actual fighting.

The reverse was designed by the firm of Bailey, Banks & Biddle and shows the American eagle surrounded by a wreath and with a scroll below, left blank for the name of the recipient. The ribbon is green with yellow stripes, the arrangement being the same as on the ribbon of the Spanish Campaign Medal.

16. The Cuban Pacification Medal commemorates the military occupation of Cuba, between 1906 and 1909, and was awarded to all officers and men who formed part of the forces in the island during that period. This occupation was undertaken for the purpose of pacifying Cuba and aiding in the establishment of a stable government. The obverse has the arms of Cuba with two American soldiers at parade rest as supporters. The ribbon is the Army olive drab with our national colors in narrow stripes at each edge.

17. The China Relief Expedition Medal commemorates the international expedition which marched to Peking to relieve the legations during the Boxer trouble of 1900, and was awarded to all officers and men who took part therein. On the obverse is the Imperial Chinese five-toed dragon. The ribbon is yellow, the color of the Manchu dynasty then on the Chinese throne, with narrow blue edges.

18. The Mexican Border Medal was given to all members of the National Guard who served on the Mexican border during the years 1916-17, and to members of the Regular Army who served in the Mexican border patrol during the same years, prior to April 6, 1917. Any service in the Army after that date is covered by the Victory Medal. It is not given to one who has the Mexican Service Medal. It will be noted that to be eligible for this medal a regular must have been actually a member of the border patrol; merely to have been stationed on the border is not sufficient.

1. MEDAL OF HONOR

2. MEDAL OF HONOR ROSETTE

3. VICTORY BUTTONS

4. DISTINGUISHED SERVICE CROSS

6. OLD MEDAL OF HONOR

5. CERTIFICATE OF MERIT

7. DISTINGUISHED SERVICE MEDAL

8. PORTO RICO OCCUPATION

9. CIVIL WAR

10. INDIAN CAMPAIGN

11. SPANISH CAMPAIGN

MEDALS OF MERIT AND SERVICE—UNITED STATES ARMY

12. CUBAN OCCUPATION

13 PHILIPPINE OCCUPATION

14. CONGRESSIONAL PHILIPPINE

15. SPANISH AMERICAN WAR

16. CUBAN PACIFICATION

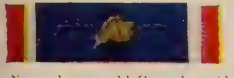
17. CHINA RELIEF EXPEDITION

18. MEXICAN BORDER SERVICE

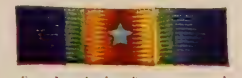
19. MEXICAN CAMPAIGN

20. LIFE SAVING 1ST CLASS

21. LIFE SAVING 2D CLASS



No more than one medal of honor, distinguished service cross, or distinguished service medal shall be issued to any one person. But for each succeeding deed or act sufficient to justify the award of a cross or a medal, a bronze oak leaf cluster will be worn in lieu of another cross or medal.



For each citation for gallantry in action published in orders from headquarters of a force commanded by a general, not warranting the issue of a cross or medal, a silver star will be worn on the ribbon.

A Bronze star will be placed on the Victory Ribbon for each battle clasp the wearer has received.

A Bronze numeral will be placed on the Expedition Ribbon of the Marine Corps to denote the number of expeditions participated in by the wearer.

MEDALS OF MERIT AND SERVICE—UNITED STATES ARMY

This medal bears the same relation to the Mexican Service Medal that the Spanish War Medal bears to the Spanish Campaign Medal, having been given to those who were ready and who were engaged in work aiding the furtherance of our policy, but who did not succeed in participating in any actual engagements; so the sheathed sword is again appropriate, and the medal is exactly the same as the Spanish War Medal, except that the inscription substitutes "Mexican Border" for "Spanish War." The colors of the ribbon are also the same, green and yellow, but the arrangement in this case is suggestive of the Mexican flag with its three stripes of equal width.

19. The Mexican Service Medal was awarded to all officers and men who took part in the Vera Cruz Expedition of 1914; in the punitive expedition under General Pershing in 1916-17; in the other authorized expeditions into Mexico which occurred about the same time; and in the various engagements along the border since 1911 in which there were casualties among the American forces.

The last incident for which this medal is authorized was the expedition under General Erwin, which entered Mexico at Juarez in June, 1919. This medal was designed by Col. J. R. M. Taylor, U. S. A. On the obverse is a Mexican yucca plant in bloom, with mountains in the background. The green edges of the ribbon suggest Mexico, the national colors of that country being green, white and red.

20 and 21. Life-Saving Medals.—These are bestowed by the Treasury Department, under authority of an act of Congress of 1874, on persons who at the risk of their own lives save persons from drowning within the United States waters or from an American vessel. They can be awarded either to civilians or to members of the military and naval forces. There are two of these medals—one in gold suspended from a red ribbon, the other in silver with a blue ribbon. These medals are worn on the Army uniform on occasions of ceremony, but no service ribbons are permitted.

NAVY MEDALS

22. The Navy Cross is a personal decoration established by Congress in February, 1919, and can be awarded to any one in the naval service who distinguishes himself by extraordinary heroism or other distinguished service not justifying the award of the Medal of Honor or the Distinguished Service Medal. It was designed by the sculptor, Mr. J. E. Fraser, of New York City.

23. The New Medal of Honor has just been approved by the Navy Department, to take the place of the old one which dated from the Civil War. It is of solid gold and was designed by Tiffany & Company, of New York City. Prior to this war about 750 Navy Medals of Honor had been awarded.

24. The Navy Distinguished Service Medal is a decoration and can be given to any one serving with the Navy "who shall distinguish himself by specially meritorious services in a duty of great responsibility." It was established by act of Congress in February, 1919. It was designed by the jewelry firm of Whitehead & Hoag and is suspended from a ribbon in the Navy colors, blue and gold.

25. The Old Naval Medal of Honor.—(For the conditions under which this was awarded see preceding article.) This design is the original one and dates from the time of the Civil War. The central medallion represents Minerva warding off Discord. The same design was also in use during the Civil War by the Army (see No. 6), with the exception that the anchor was replaced by a trophy of arms surmounted by an eagle. Originally the ribbon for this medal had thirteen vertical stripes of red and white with a narrow band of blue across the top (No. 6). The present ribbon (see No. 23) was adopted by the Navy in 1913.

26. The Civil War Medal was awarded for service in the Navy or Marine Corps during the Civil War. The obverse shows the famous battle between the *Monitor* and the *Merrimac*. The ribbon is the same as for the Army.

27. The Marine Corps Good Conduct Badge is given to any enlisted man of the Marine Corps who has served one full enlistment of four years with marked attention to his duties and is recommended by his commanding officer for obedience, sobriety, industry, courage, neatness, and proficiency. Having received one such badge and on any subsequent recommendation at the end of a four years' term of service, he is given a bar to be worn on the ribbon of the badge. The obverse bears a ship's anchor and chain, and in the center a marine standing at the breech of a rapid-fire gun, and on a scroll the motto of the Marine Corps, "Semper Fidelis." The reverse has the inscription "Fidelity - Zeal - Obedience" in a circle inclosing the name of the recipient, the date of his enlistment, and the name of the ship on which he served.

28. The Meritorious Service Medal was awarded to the personnel of the Navy or Marine Corps who rendered particularly hazardous or meritorious service during the Spanish War. It was authorized by act of Congress in 1901 and was given to the crew of the *Merrimac* for their attempt to block the harbor of Santiago; to the naval officers who reconnoitered Santiago from the land side to ascertain the whereabouts of Cervera's fleet; to the crews of the ships which cut cables under fire and to the boats' crews which saved the lives of sailors from the sinking Spanish ships at the battle of Santiago. On the reverse is placed the name and rank of the recipient and the event and date for which awarded.

29. The Navy Good Conduct Medal is given to enlisted men of the Navy under the same conditions as the Good Conduct Medal for the Marine Corps. The obverse shows the old frigate *Constitution*, launched in 1797. The reverse is the same as the Marine Corps badge.

30. The Spanish American War Medal was awarded to all officers and men of the Navy and Marine Corps who served afloat in the theater of active naval operations, or on shore in Cuba, Porto Rico, the Philippines, or Guam between May 1, 1898, and August 16, 1898.

The obverse shows Morro Castle, at the entrance to Havana Harbor.

The reverse of most of the Navy and Marine Corps medals is an eagle standing on a foul anchor and directly below the words "For service"; above appears "United States Navy" or "United States Marine Corps," as the case may be; in the lower part is a wreath of laurel and oak. The ribbon is the same as for the Army medal.

31. The Philippine Campaign Medal was given for duty on naval vessels or on shore in the Philippine Islands between February 4, 1899, and July 4, 1902, the period of the military occupation; or on shore in the Department of Mindanao, co-operating with the Army, between February 4, 1899, and December 31, 1904. The obverse shows an old gate in the city wall of Manila. The ribbon is the same as that used by the Army.

32. The Medal for Naval Engagements in the West Indies, 1898, popularly known as the "Sampson Medal," was authorized by act of Congress March 3, 1901, and was awarded to all officers and men of the Navy and Marine Corps who participated in any of the naval engagements in the West Indies between May 6, 1898, and August 14, 1898. The medal is provided with bronze bars above the ribbon bearing the names of the ships on which the recipient served. On the obverse is a bust of Admiral Sampson and on the reverse a group of figures on the deck of a ship, the central figure being an officer, another a sailor firing a rapid-fire gun, and the third a marine with a rifle in his hand; below is the name of the engagement.

33. The China Relief Expedition Medal was awarded to officers and men of the Navy and Marine Corps who took part in this expedition between May 24, 1900, and May 27, 1901. The obverse shows the *Chienmen*, the main gate to the walled city of Peking, with an imperial Chinese dragon below. The ribbon is the same as in the Army.

34. The Manila Bay Medal, commonly known as the "Dewey Medal," was authorized by act of Congress approved June 3, 1898, to commemorate the victory of Manila, and was awarded to all officers and men of the Navy and Marine Corps who took part in that battle of May 1, 1898. It was designed by the sculptor, Mr. Daniel C. French, and on the obverse is the bust of Admiral Dewey. The reverse shows a seaman sitting on a naval gun and grasping the staff of a flag draped across his lap; below is stamped the name of the ship on which the recipient served in the battle. This medal is unique in that it is suspended from a bar by a link and the ribbon merely hangs behind the medal and is not in any way connected with the suspension thereof. The bar shows an American eagle with its wings spread over the sea, a sword hilt to the right and an olive branch on the left. The ribbon is in the Navy colors, blue and gold.

35. The Cuban Pacification Medal was awarded to officers and men of the Navy and Marine Corps who formed part of the expeditionary force sent to Cuba in 1906. The obverse shows Columbia presenting an olive branch to Cuba, the Dove of Peace hovering above. The same ribbon as the Army medal is used.

36. The Nicaraguan Campaign Medal commemorates the naval expedition, consisting mostly of marines, which went to the aid of the Government of Nicaragua in 1912. A short but sharp campaign ensued in which the revolutionary forces were defeated, order was restored, and our troops withdrawn. It was awarded to all officers and men of the Navy and Marine Corps who took part in the expedition between August 28, 1912, and November 2, 1912. The obverse shows the Nicaraguan volcano, Mt. Momotombo, rising from Lake Managua behind a tropical forest.

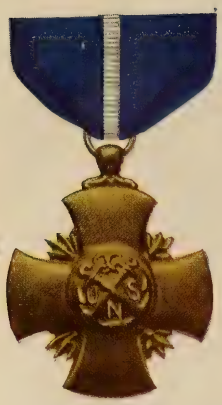
37. The Haitian Campaign Medal commemorates an expedition to Haiti in 1915, similar to the Nicaraguan Expedition (see No. 36). A detachment of marines has remained on the island ever since to insure the preservation of order, but the medal was awarded only to the members of the joint naval and marine expedition which conducted the active campaign between July 9 and December 6, 1915. The obverse represents a view from the sea of the mountains of Cape Haitien, with the sea in the foreground. The colors of the ribbon are red and blue, the same as the national colors of Haiti.

38. The Mexican Campaign Medal was given to officers and men of the Navy and Marine Corps who served at Vera Cruz on April 21, 22, or 23, 1914, when the Navy landed and occupied that city; also to all who served on shipboard off the Mexican coast between April 21 and November 26, 1914, or between March 14, 1916, and February 7, 1917; also to any who were actually present and participated in an engagement between armed forces of the United States and Mexico between April 12, 1911, and February 7, 1917. The obverse shows the old castle of San Juan de Ulloa in the harbor of Vera Cruz. The ribbon is the same as for the Army medal.

The Expeditionary Ribbon, Marine Corps (see illustration under No. 21, Life Saving Medal, second class), shows participation in one or more of the numerous expeditions to foreign countries undertaken by detachments of Marines, and for which no campaign medal is awarded. Sixteen expeditions are thus commemorated between 1902 and 1917—nine to Panama, two each to Cuba and Nicaragua, and one each to China, Abyssinia, and Korea. This list is a good illustration of the diverse employment of the Marine Corps. There is no medal, only a service ribbon in the colors of the Marine Corps. The number of the expeditions in which the wearer participated is shown by a bronze numeral in the center of the ribbon, a unique feature in decorations.

THE VICTORY MEDAL

The Victory Medal (see illustration, page 464) is to commemorate the recent war with Germany and is awarded to all officers, enlisted men, field clerks, and nurses who served in Army, Navy, or Marine Corps between April 6, 1917, the date of the declaration of war against Germany, and November 11, 1918, the date of

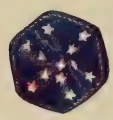


22. NAVY CROSS

23. MEDAL OF HONOR

24. DISTINGUISHED SERVICE MEDAL

25. OLD MEDAL OF HONOR



MEDAL OF HONOR ROSETTE

26. CIVIL WAR

VICTORY BUTTON.

27. U. S. MARINE CORPS GOOD CONDUCT

28. MERITORIOUS SERVICE

29. GOOD CONDUCT NAVY

MEDALS OF MERIT AND SERVICE—UNITED STATES NAVY AND MARINE CORPS

30. SPANISH AMERICAN WAR

31. PHILIPPINE CAMPAIGN

32. SAMPSON MEDAL

33. CHINA RELIEF EXPEDITION

34. DEWEY MEDAL

35. CUBAN PACIFICATION

36. NICARAGUAN CAMPAIGN

37. HAITIAN CAMPAIGN

38. MEXICAN CAMPAIGN

MEDALS OF MERIT AND SERVICE—UNITED STATES NAVY

the armistice. It is also given to those who served in Russia or Siberia during 1919 and who joined the service subsequent to November 11, 1918.

Conscientious objectors who refused to accept military service and the men who were rejected at camps before doing military duty rendered no military services and therefore will not be given the medal. Members of the Y. M. C. A. and other welfare societies are also not eligible for it, as they were neither soldiers nor sailors and cannot be classed as combatants.

The medal was designed by Mr. J. E. Fraser, of New York City, under the direction of the Commission of Fine Arts. The obverse shows a winged Victory. On the reverse is a list of the nations which participated in the actual fighting. To show participation in hostilities clasps are awarded for the following:

Cambrai—between May 12 and December 4, 1917 (2,500 clasps is the estimated number to be awarded).
Somme Defensive—between March 21 and April 6, 1918 (2,200 clasps).
Lys—between April 9 and April 27, 1918 (500 clasps).
Aisne—between May 27 and June 5, 1918 (27,500 clasps).
Montdidier-Noyon—between June 9 and June 13, 1918 (27,000 clasps).
Champagne-Marne—between July 15 and July 18, 1918 (85,000 clasps).
Aisne-Marne—between July 18 and August 6, 1918 (270,000 clasps).
Somme Offensive—between August 8 and November 11, 1918 (54,000 clasps).
Oise-Aisne—between August 18 and November 11, 1918 (85,000 clasps).
Ypres-Lys—between August 19 and November 11, 1918 (108,000 clasps).
St. Mihiel—between September 12 and September 16, 1918 (550,000 clasps).
Meuse-Argonne—between September 26 and November 11, 1918 (1,200,000 clasps).
Vittorio-Veneto—between October 24 and November 4, 1918 (1,200 clasps).

In addition, there is the Defensive Sector Clasp, which is given for any occupation of a defensive sector or for participation in any engagement in France, Italy, Russia, or Siberia not enumerated above, but only one Defensive Sector clasp is given to any one individual.

These clasps are called battle clasps, and for each one a small bronze star is worn on the service ribbon. (See illustration under No. 20, Life Saving Medal, first class.) In addition, there are five service clasps which are not given to those who are entitled to a battle clasp, and no stars are worn for them on the service ribbon. They are:

France.—For any service in France between April 6, 1917, and November 11, 1918.
Italy.—For any service in Italy between April 6, 1917, and November 11, 1918.
England.—For any service in England between April 6, 1917, and November 11, 1918. (With the additional proviso that this clasp will only be given to those who served in England and nowhere else overseas.)
Siberia.—For any service in Siberia since April 6, 1917.
Russia.—For any service in Russia since April 6, 1917.

Crews of transports receive one of these clasps, depending on the country to which they sailed.

The Navy has sixteen clasps, but only one is given to any one person. A bronze star is worn on the service ribbon to indicate possession of a clasp. Naval forces that served with the Army receive the Army clasps and stars to which their services entitle them. (For further particulars see preceding article.) The Navy clasps are:

Transport.—On transport duty in North Atlantic.
Escort.—On escort duty in North Atlantic.
Armed Guard.—On armed guard duty in North Atlantic.
Grand Fleet.—Between December 9, 1917, and November 11, 1918.
Patrol.—In European waters prior to May 25, 1918 (the date of the appearance of German submarines off American coast), anywhere in North Atlantic after May 25.
Submarine.—Same conditions as Patrol
Destroyer.—Same conditions as Patrol.
Aviation.—Same conditions as Patrol.
Naval Battery.—Between July 10 and November 11, 1918.
White Sea.—Service on vessel making a White Sea port.
Asiatic.—Service on vessel making Asiatic port.
Mine Laying.—Between May 26 and November 11, 1918.
Mine Sweeping.—
Salvage.—
Atlantic Fleet.—Between May 25 and November 11, 1918.
Overseas.—On shore in Europe.

ORGANIZATION SHOULDER INSIGNIA

39. The First Army was organized for the St. Mihiel offensive, under command of General Pershing himself. It then consisted of the First, Fourth, and Fifth Corps, with the Thirty-third, Thirty-fifth, Eightieth, and Ninety-first Divisions in reserve. The object was attained without putting any of the reserve divisions in the line.

Later the First Army was commanded by Lieut. Gen. Hunter Liggett, and at the commencement of the Meuse-Argonne drive consisted of the First, Third, and Fifth Corps, with the First, Twenty-ninth, and Eighty-second Divisions in reserve.

In the lower part of the insignia are devices to represent different arms of the service: a red and white patch for army artillery; red castle for the army engineers; red, white, and blue cocarde for the air service of the army, etc.

In the reorganization after the armistice the First Army consisted of the First, Fifth, and Eighth Corps and immediately began preparations to leave France for the United States.

40. The Second Army was organized on October 10, during the Meuse-Argonne operation, and operated between the Moselle and the Meuse, under Lieut. Gen. R. L. Bullard, during the remainder of the fighting.

The colors of the insignia come from the standard colors of an army headquarters used by both French and Americans, a flag of red and white (the red being the upper half) to mark the headquarters of the army, and a small piece of ribbon, similarly colored, worn on the front of the coat by staff officers of a French army.

In the reorganization after the armistice the Second Army consisted of the Sixth and Ninth Corps, and was stationed around Metz, Toul, and St. Mihiel, engaged in salvage work.

41. The Third Army was formed after the armistice, under command of Maj. Gen. J. T. Dickman, to advance into Germany and occupy the bridgehead at Coblenz. It consisted of the Third, Fourth, and Seventh Corps. The insignia, an "A" inside an "O," stands for Army of Occupation.

42. The First Division was the first in France, its headquarters arriving there June 27, 1917, and it was the last complete division to return, in September, 1919. It was the first at the front, the first to fire at the enemy, the first to attack, the first to make a raid, the first to suffer casualties and the first to inflict casualties, and, finally, the first to be cited in general orders.

It was in the Sommerville sector, southeast of Nancy, October 21 to November 20, 1917; Ansauville sector January 15 to April 3, 1918; Cantigny sector and the Battle of Cantigny April 25 to July 7; the Marne offensive July 18 to 24; Saizerais sector August 7 to 24; St. Mihiel operation September 12 and 13; Meuse-Argonne offensive October 1 to 12; operation against Mouzon and Sedan November 5 to 7; march on Coblenz November 17 to December 14.

In all, this division passed 93 days in active sectors and 127 in so-called quiet sectors; but the word "quiet" is merely relative, because, no matter how peaceful it may have been before, when occupied by American troops the enemy had no rest, and for their own protection the Germans were obliged to reciprocate the attentions they received.

This division captured 6,469 prisoners and advanced 51 kilometers against resistance, with a casualty list of 4,411 battle deaths and 17,201 wounded.

43. The insignia of the Second Division was evolved by a truck driver, according to report. He painted the device on the side of his truck and it was selected as the insignia for the division.

The color of the background on which the star is placed shows the battalion or independent company in the regiment, according to the following schedule: Black, Headquarters Company; green, Supply Company; purple, Machine Gun Company; red, First Battalion; yellow, Second Battalion; and blue, Third Battalion.

The shape of the background showed the regiment, as follows: Ninth Infantry, pentagon; Twenty-third Infantry, circle; Fifth Marines, square; Sixth Marines, diamond; Twelfth Field Artillery, horizontal oblong; Fifteenth Field Artillery, vertical oblong; Seventeenth Field Artillery, projectile; and Second Engineers, castle.

This division was organized in France from troops sent over separately. Its headquarters was established October 26, 1917, and training as a division began at once.

It was in the Verdun and Toul sectors March 15 to 24, 1918; Château-Thierry sector May 31 to July 9, with almost continuous heavy fighting, including the famous Belleau Wood operation; Marne offensive July 18 to 20; Marbache sector August 9 to 24; St. Mihiel sector, including the offensive operation there, September 9 to 16; Blanc Mont sector and offensive in Champagne, September 28 to October 27; Meuse-Argonne offensive October 30 to November 11.

The division passed 66 days in active sectors and 71 in quiet; it advanced 60 kilometers against resistance, lost 4,478 killed and 17,752 wounded, and captured 12,026 of the enemy.

The Second led all our divisions in the number of Distinguished Service crosses awarded, 664 being the last official report, but it is undoubtedly greater now.

44. The Third Division was organized in November, 1917, at Camp Greene, North Carolina, and went to France in April, 1918; was in the Château-Thierry sector May 31 to July 29, stopping the German attack of July 15 to 18, the last of the enemy offensives. Its conduct on that occasion earned for it the title of the "Marne Division."

It was in the St. Mihiel sector September 10 to 14, Meuse-Argonne offensive September 30 to October 27, and marched on the Rhine November 14.

The Third was never stationed in a quiet sector, but was 86 days in active sectors—more than any other division with the exception of the First. It advanced 41 kilometers against resistance, captured 2,240 prisoners, and lost 3,177 killed and 12,940 wounded, being exceeded in its casualty list by the First and Second Divisions only.

The three white stripes of its insignia are symbolical of the three major operations in which the division participated—the Marne, St. Mihiel, and the Meuse-Argonne. The blue field symbolizes the loyalty of those who placed their lives on the altar of self-sacrifice in defense of the American ideals of liberty and democracy.

45. The Fourth Division, like the Third, was organized in December, 1917, at Camp Greene, North Carolina. It went to France in May, 1918; from July 18 to 21 it operated with the Sixth French Army in the offensive near Norroy and Hautevesnes; August 3 to 12 it operated in the Vesle sector; Toul sector, September 7 to 15; Meuse-Argonne, September 25 to October 19. March on Coblenz November 20.

It captured 2,756 prisoners; advanced 24½ kilometers against resistance; spent 7 days in a quiet sector and 38 in active, and lost 2,611 killed and 9,893 wounded. Four ivy leaves, representing the number of the division, constitute the insignia.

46. The Fifth Division was organized in November, 1917, at Camp Logan, Texas, and went to France at the beginning of May, 1918. It served in the Colmar sector June 15 to July 16; St. Dié sector July 16 to August 23; St.

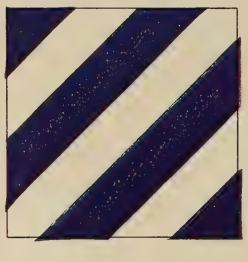
FIRST ARMY
(39)

SECOND ARMY
(40)

THIRD ARMY
(41)

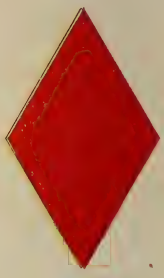
1ST DIVISION
(42)

2D DIVISION
(43)



3D DIVISION
(44)

4TH DIVISION
(45)



5TH DIVISION
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6TH DIVISION
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7TH DIVISION
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8TH DIVISION
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10TH DIVISION
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11TH DIVISION
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12TH DIVISION
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13TH DIVISION
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14TH DIVISION
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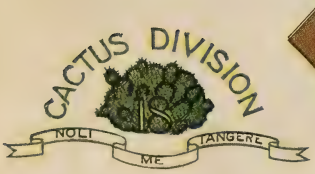

18TH DIVISION
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26TH DIVISION
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27TH DIVISION
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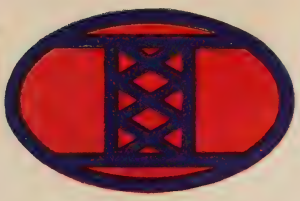
28TH DIVISION
(58)

INSIGNIA—UNITED STATES ARMY

29TH DIVISION
(59)



30TH DIVISION
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31ST DIVISION
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32D DIV
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33D DIVISION
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34TH DIVISION
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35TH DIVISION
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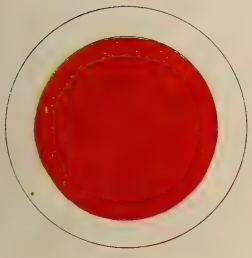
36TH DIVISION
(66)



37TH DIVISION
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38TH DIVISION
(68)

39TH DIVISION
(69)

40TH DIVISION
(70)

41ST DIVISION
(71)

42D DIVISION
(72)

76TH DIVISION
(73)

77TH DIVISION
(74)

78TH DIVISION
(75)

79TH DIVISION
(76)

80TH DIVISION
(77)

81ST DIVISION
(78)

INSIGNIA—UNITED STATES ARMY

Mihiel operation September 11 to 17; Meuse-Argonne, October 12 to 22 and October 27 to November 11.

This division captured 2,356 prisoners; advanced 29 kilometers against resistance; spent 71 days in quiet sectors and 32 in active; lost 1,976 killed and 6,864 wounded.

The insignia, the Ace of Diamonds, was placed on all the divisional baggage as a distinctive mark before leaving the United States for overseas service. No significant meaning is recalled, other than that the red was a compliment to the then commanding general, who came from the artillery. The following explanations have been made, however:

"Diamond dye—it never runs."

"A diamond is made up of two adjacent isosceles triangles, which make for the greatest strength." The division was nicknamed the "Red Diamond Division."

47. The Sixth Division was organized in November, 1917, at Camp McClellan, Alabama, and arrived in France in July, 1918. It occupied a sector in the Vosges under French command September 3 to October 11 and was in reserve in the Meuse-Argonne offensive November 2 to 11, spending 40 days in quiet sectors and none in an active sector. It captured 12 prisoners and lost 93 killed and 453 wounded.

The insignia is a six-pointed star in red, and is frequently seen with the figure "6" superimposed on the star, but that was never authorized.

This division is reported to have marched more than any other in the A. E. F. and was known as the "Sight-seeing Sixth."

48. The Seventh Division was organized at the beginning of January, 1918, at Camp Wheeler, Georgia, and went to France in August. It occupied a sector in Lorraine October 9 to November 11. It captured 69 prisoners, spent 31 days in quiet sector and 2 in active, and lost 296 killed and 1,397 wounded.

The insignia originated as the result of using two figures seven, one inverted and superimposed, which was later transformed into two triangles. It was used for marking the baggage of the division before going overseas.

49. The Eighth Division was organized at Camp Fremont, California, in December, 1917. When the armistice was signed the artillery, engineers, and one regiment of infantry (the Eighth, now on duty at Coblenz) had left for France. The remainder of the division was at the port ready to leave, but, as all troop movements were at once suspended, the division complete never reached France. Nevertheless, it lost 6 men killed and 29 wounded. It received the name of the Pathfinder Division, which is represented in the insignia by the gold arrow, pointing upward.

50. The Tenth Division was organized at Camp Funston in August, 1918. It never reached France.

51. The Eleventh Division was organized at Camp Meade, Maryland, in August, 1918, and, like all the divisions numbered from 9 to 20, inclusive (several of which chose no insignia), it never left the United States. It became known as the Lafayette Division, the profile of the Revolutionary hero being represented in the insignia.

52. The Twelfth Division was organized at Camp Devens in July, 1918, and took the name of the Plymouth Division because it was recruited mainly from the New England States.

53. The Thirteenth Division was organized at Camp Lewis, Washington, in September, 1918. The device includes the two proverbial "bad luck" symbols, the figure 13 and a black cat, surrounded by the "good luck" horseshoe, indicative of the doughboy's confidence in his ability to overcome all hoodoos.

54. The Fourteenth Division was organized at Camp Custer, Michigan, in July, 1918, and took the name of the Wolverine Division, those animals having been very common in Michigan in the early days. The head of a wolverine appears on the insignia.

55. The Eighteenth Division was organized at Camp Travis, Texas, in August, 1918, and acquired the name of the Cactus Division, which appears on the insignia, together with the Latin motto meaning "Touch me not."

56. The Twenty-sixth Division is the first of the National Guard divisions, and was formed from the National Guard of the New England States.

The National Guard was called into the Federal service in July, 1917, and drafted into the service, under the provisions of the National Defense Act of 1916, on August 5, 1917; this made them eligible for foreign service. The New England Guard went into camp in their respective States, remaining there until departure for France, which was in the fall of that year.

The Twenty-sixth was the first National Guard division to enter the line and was preceded in this by the First Division only. It was in the Chemin des Dames sector February 6 to March 18; La Reine and Boucq sector March 31 to June 28; northwest of Château-Thierry July 10 to 25 (which included the Marne offensive); Rupt and Tryon sector September 8 to October 8 (which included the St. Mihiel operation); north of Verdun, as Army reserve, October 18 to November 11.

This division spent 148 days in quiet sectors and 45 in active, being exceeded in total time under fire by the First Division only. It captured 3,148 prisoners, advanced 37 kilometers against resistance, and lost 2,135 killed and 11,325 wounded, standing sixth among the divisions in the casualty list. It was named the Yankee Division and used the initials thereof for its insignia.

57. The Twenty-seventh Division was the New York Division of the National Guard. After being drafted into the Federal service it went to Camp Wadsworth, South Carolina, remaining there until departure for France, in May, 1918. Its entire active service in Europe was with the British, as a part of the Second Corps. It was in the East Poperinghe (Belgium) line, four battalions at a time, from July 9 to September 3, 1918; in the Dickebusch sector, Belgium, August 24 to September 3; the breaking of the Hindenburg line, September 24

to October 1; St. Souplet sector, October 12 to 21.

The Twenty-seventh spent 57 days in active sectors—there were no quiet sectors on the British front. It captured 2,357 prisoners, and advanced 11 kilometers against resistance, losing 1,785 killed and 7,201 wounded.

The insignia is an "N. Y." in monogram and the seven principal stars of the constellation Orion, in compliment to the division commander, Maj. Gen. J. F. O'Ryan. A unique feature in connection with this insignia is that only soldiers rated by the company commanders "as first-class soldiers" were permitted to wear it.

58. The Twenty-eighth, like the Twenty-seventh, was an organized division in the National Guard. It came from the State of Pennsylvania, New York and Pennsylvania being the only two States with complete divisions in their Guard at the outbreak of the war. It was trained at Camp Hancock, Georgia, leaving for France in May, 1918.

This division served in a sector southeast of Château-Thierry June 30 to July 31, including the defensive and offensive operations along the Marne; Vesle sector, August 7 to September 8; Meuse-Argonne operation, September 20 to October 9; Thiaucourt sector, October 16 to November 11. It was 31 days in quiet sectors and 49 in active, capturing 921 prisoners; it advanced 10 kilometers against resistance and lost 2,551 killed and 11,429 wounded, the highest of any National Guard division, and was exceeded only by the First, Second, and Third regular divisions. The Keystone of Pennsylvania was selected as its device.

59. The Twenty-ninth Division was organized at Camp McClellan, Alabama, from the National Guard of the States of New Jersey, Maryland, Delaware, Virginia, and the District of Columbia. It arrived in France in June, 1918, and served in the Vosges July 25 to September 22, and north of Verdun October 7 to 30. It spent 59 days in quiet sectors and 23 in active. It captured 2,187 prisoners, advanced 7 kilometers against resistance, and lost 951 killed and 4,268 wounded.

The divisional insignia is taken from the Korean symbol of good luck, and the personnel, partly from the north and partly from the south, was responsible for its name, the Blue and Gray Division, and for the colors of the insignia.

60. Organized at Camp Sevier, South Carolina, from the National Guard of Tennessee and North and South Carolina, the Thirtieth Division arrived in France in May, 1918, and served entirely with the British, alongside the Twenty-seventh Division. It was in the Canal sector, south of Ypres, July 16 to August 17, being brigaded with the British at that time; then under American command in the same sector to September 4; Gouy-Norroy sector, including breaking the Hindenburg line, September 23 to October 2; Beaurevoir sector, October 5 to 12; Le Cateau sector, October 16 to 20.

Serving 56 days in active sectors, none in quiet, the Division captured 3,848 prisoners, advanced 29½ kilometers against resistance, and lost 1,629 killed and 7,325 wounded. It was known as the Old Hickory Division, taken from the nickname of the famous Tennesseean, Andrew Jackson, and the insignia shows the letter "O" surrounding the letter "H," with the Roman numerals XXX inside the cross-bar of the "H," representing the divisional number, "30." This is worn horizontally, not vertically, as the design reads. This insignia was used on the divisional transport long before the adoption of the shoulder insignia.

61. The Thirty-first Division was organized from the National Guard of Georgia, Alabama, and Florida, at Camp Wheeler, Georgia. It went to France in October, 1918, and never entered the line. The insignia stands for the initials of the nickname, the Dixie Division, and was used for marking the baggage as early as November, 1917.

62. The Thirty-second Division was organized from the National Guard of Michigan and Wisconsin, at Camp McArthur, Texas. It arrived in France in February, 1918; served on the Alsace front May 18 to July 21; Fismes front July 30 to August 7; Soissons, August 28 to September 3; Meuse-Argonne, September 30 to October 20, including the operations against the Kriemhild line; east of the Meuse, November 8 to 11; in the Army of Occupation from November 17. It spent 60 days in quiet sectors and 35 in active; captured 2,153 prisoners, advanced 36 kilometers against resistance, and lost 2,915 killed and 10,477 wounded. The insignia of an arrow was selected because they "shot through every line the Boche put before them."

63. The Thirty-third Division was organized from the National Guard of Illinois, at Camp Logan, Texas. It went to France in May, 1918; served in the Amiens sector with the Australians July 19 to August 20, by detachments. From September 9 to November 11 some units of the division were always in the line, serving north of Verdun and west of the Meuse during the Meuse-Argonne operation. For 32 days it served in quiet sectors and 27 in active; captured 3,987 prisoners, more than any other National Guard division, and was surpassed in this respect by only three in the Army, the First, Second, and Eighty-ninth. It advanced 36 kilometers against resistance and lost 989 killed and 6,266 wounded.

The colors of this division's insignia are said to have been chosen because they were the only paints available when it became necessary to mark the equipment in Texas before leaving for France.

64. The Thirty-fourth Division was organized from the National Guard of Iowa, Minnesota, Nebraska, and North Dakota, at Camp Cody, New Mexico. It went to France in September, 1918, but did not get into the line. The bovine skull on the insignia is a conventionalization of the Mexican water flask, and with the name, Sandstorm Division, is strongly suggestive of the State where the division was organized and trained.

65. The Thirty-fifth Division was organized from the National Guard of Missouri and Kansas, at Camp Doniphan, Oklahoma. It went to France in May, 1918, and served first, brigade at a time, in the Vosges July 1 to 27

82D DIVISION
(79)

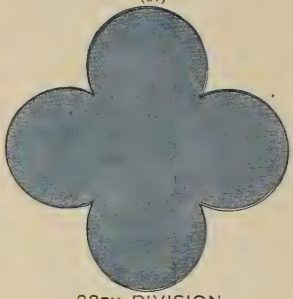
83D DIVISION
(80)

84TH DIVISION
(81)

85TH DIVISION
(82)

86TH DIVISION
(83)

87TH DIVISION
(84)



88TH DIVISION
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89TH DIVISION
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90TH DIVISION
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91ST DIVISION
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92D DIVISION
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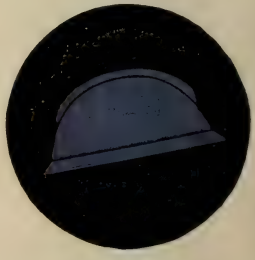


93D DIVISION
(90)

1ST CORPS
(91)

2D CORPS
(92)

3D CORPS
(93)

4TH CORPS
(94)

5TH CORPS
(95)

6TH CORPS
(96)

7TH CORPS
(97)

8TH CORPS
(98)

INSIGNIA—UNITED STATES ARMY

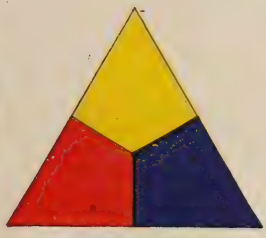
9TH CORPS
(99)

2D CORPS SCHOOL
(100)

3D CORPS SCHOOL
(101)

AMBULANCE SERVICE
(102)

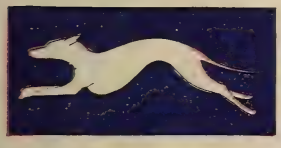
ADVANCE SECTION
SERVICE OF SUPPLY
(103)



TANK CORPS
(104)

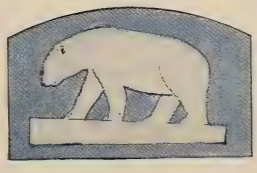
DISTRICT OF PARIS
(105)

LIAISON SERVICE
(106)

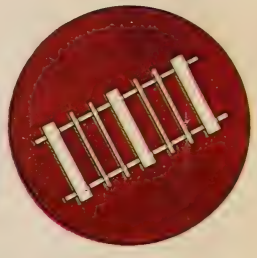


POSTAL EXPRESS SERVICE
(107)

ARMY
ARTILLERY SCHOOL
(108)



NORTH RUSSIA
EXPEDITION
(109)



CAMP PONTANEZEN
(110)

RESERVE MALLET
(111)

13TH ENGINEERS
(112)

CHEMICAL
WARFARE SERVICE
(113)

CENTRAL
RECORDS OFFICE
(114)

CAMOUFLAGE
CORPS
(115)

RAILWAY
ARTILLERY
RESERVE
(116)

(117)
RAILHEADS
REGULATING STATIONS

GENERAL HEADQUARTERS
(118)

SERVICE OF SUPPLY
(119)

INSIGNIA—UNITED STATES ARMY

and July 27 to August 14. The whole division served in the Gerardmer sector August 14 to September 2; Meuse-Argonne, September 21 to October 1; Sommedieu sector, October 16 to November 7.

The men of this division were 92 days in quiet sectors and 5 in active; advanced 12½ kilometers against resistance, captured 781 prisoners, and lost 1,067 killed and 6,216 wounded. Their device shows the old Santa Fe cross, which was employed to mark the Santa Fe Trail in the old days. This trail started near Camp Doniphan. This emblem was adopted for marking the property and baggage soon after the organization of the division.

66. The Thirty-sixth Division was organized from the National Guard of Texas and Oklahoma, at Camp Bowie, Texas. It went to France in July, 1918, and served in the Champagne during the French offensive there, October 6 to 28. It was 23 days in active sector, none in quiet; captured 549 prisoners, advanced 21 kilometers against resistance, and lost 600 killed and 1,928 wounded. The divisional insignia is the letter "T," for Texas, superimposed on an Indian arrow-head, for Oklahoma (not long ago the Indian Territory).

67. The Thirty-seventh Division was organized from the National Guard of Ohio and West Virginia, at Camp Sheridan, Alabama. It went to France in June, 1918, and served in the Baccarat sector August 4 to September 16; Meuse-Argonne offensive, September 25 to October 1; St. Mihiel sector, October 7 to 16; on the Lys and Escaut rivers, in Flanders, October 31 to November 4; Syngem sector (Belgium), November 9 to 11—a total of 50 days in quiet sectors and 11 in active. It advanced 30 kilometers against resistance, captured 3,848 prisoners, and lost 977 killed and 4,266 wounded. The insignia was taken from the State flag of Ohio.

68. The Thirty-eighth Division was organized from the National Guard of Indiana and Kentucky, at Camp Shelby, Mississippi. It went to France in October, 1918, but was never in the line. It was called the Cyclone Division; hence the "CY," the insignia.

69. The Thirty-ninth Division was organized from the National Guard of Louisiana, Mississippi, and Arkansas, at Camp Beauregard, Louisiana. It went to France in August, 1918, as a depot division, from which replacements were sent to the combat divisions at the front; therefore it was never intended to be in the line. The insignia shows the Greek letter delta, because the personnel came from the vicinity of the Mississippi delta, but it was never approved by the A. E. F. It was stationed at St. Florent and sent 10,156 replacements to the front.

70. The Fortieth Division was organized from the National Guard of California, Utah, Arizona, and Colorado, at Camp Kearny, California. It went to France in August, 1918, and, like the Thirty-ninth, was a depot division, being stationed at La Guerthe, and sent 16,327 replacements to the front. It was known as the Sunshine Division, and the insignia carries out the idea.

71. The Forty-first Division was organized from the National Guard of Washington, Oregon, Idaho, and Wyoming, at Camp Greene, North Carolina, leaving in December, 1917, for France. This was the first depot division to go across and was stationed at St. Aignan, Noyers, and sent 295,668 replacements to the front, equivalent to more than ten complete divisions. It was known as the Sunset Division, and its members wore as their distinguishing device a sun setting over the blue waters of the Pacific.

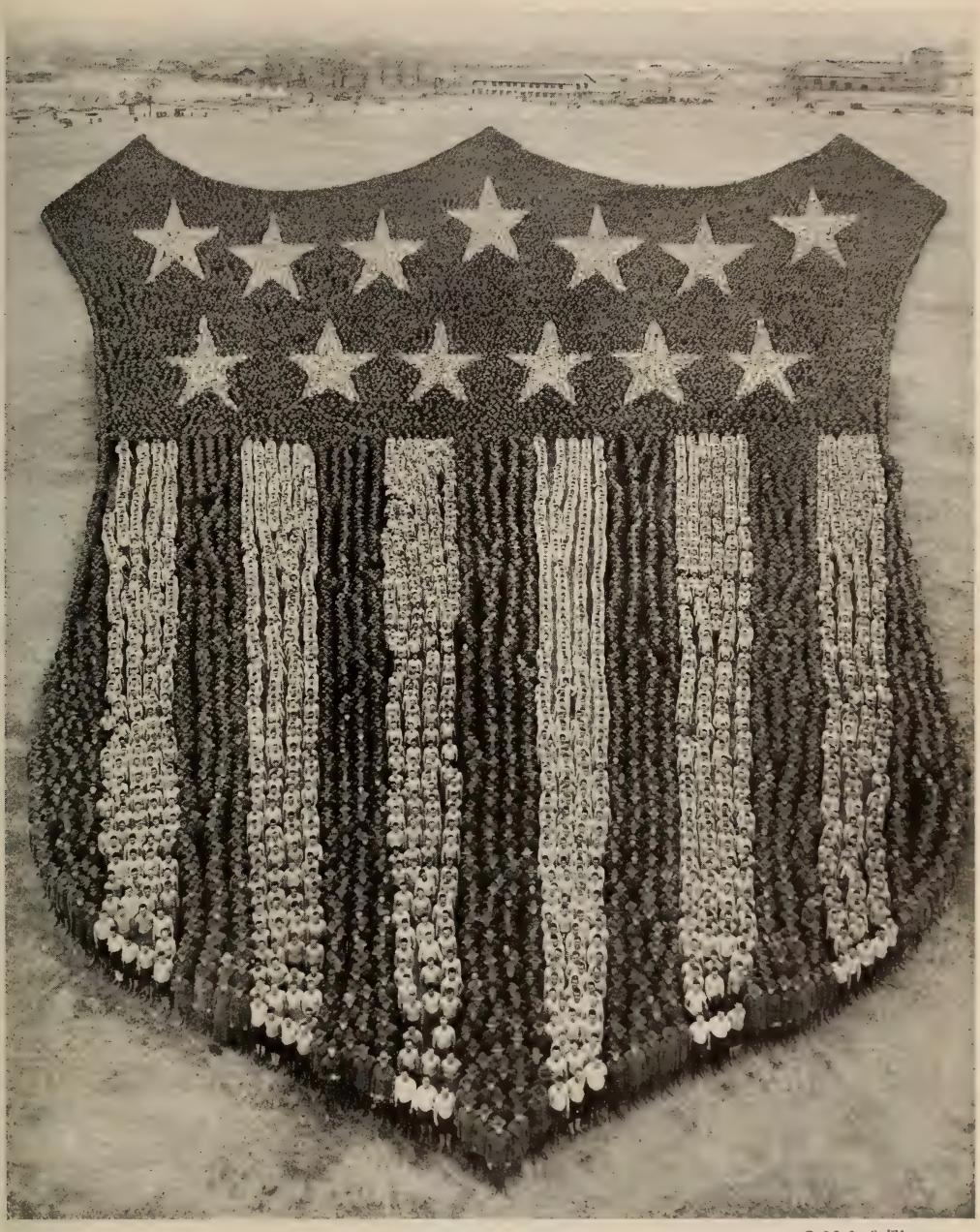
72. The Forty-second Division was organized from National Guard units left over after the formation of the preceding sixteen divisions, and 26 States contributed; hence the popular name of the Rainbow Division, which is carried out in the insignia.

This organization arrived in France in November, 1917, and served in Lorraine, February 17 to June 21, part of the time under French command; east of Rheims, July 5 to 17 (including the last German offensive); Trugny and Beuvardes, July 25 to August 3; St. Mihiel operation, September 12 to 30; Meuse-Argonne offensive, October 13 to 31; and again, November 5 to 10.

The Rainbow Troops served 125 days in quiet sectors and 39 in active, advancing 55 kilometers against resistance, more than any other National Guard division, and was excelled in this particular only by the Second and Seventy-seventh Divisions. It captured 1,317 prisoners and lost 2,644 killed and 11,275 wounded.

73. The Seventy-sixth Division and those following, to include the Ninety-second, were known as National Army divisions and were organized from the first draft in September, 1918. The Seventy-sixth was composed of men from the New England States and northern New York State and was stationed at Camp Devens, Massachusetts. It went to France in July, 1918, and was a depot division, stationed at St. Amand-Montrond and sent 19,971 replacements to the front.

74. Men from southern New York, including New York City, comprised the Seventy-seventh Division. It was organized at Camp Upton, Long Island, and went to France in April, 1918, the first National Army division to go overseas. It served in the Baccarat sector, Lorraine, June 20 to August 4; on the Vesle, August 12 to September 16; Meuse-Argonne offensive, September 26 to October 16, where it was the extreme left of the American army, and again from October 31 to November 11. It spent 47 days in quiet sectors and 66 in active, the total under fire being more than any other National Army division and the service in active sectors being equal to that of the Second Division and exceeded only by the First and Third Divisions, all three being regular divisions.



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THIRTY THOUSAND OFFICERS AND MEN AT CAMP CUSTER, BATTLE CREEK, MICHIGAN, FORMED THIS HUMAN UNITED STATES SHIELD

Two divisions were organized at Camp Custer—the Eighty-fifth (No. 82), which reached France and served as a depot division at Cosnes, sending 3,928 replacements to the front, and the Fourteenth, or "Wolverine," Division (No. 54), which was kept in this country, owing to the ravages of the influenza epidemic, more than 10,000 cases developing at this camp, resulting in 660 deaths. One infantry regiment of the Eighty-fifth Division, the Three Hundred and Thirty-ninth, served in northern Russia.

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THE LIVING EMBLEM OF THE UNITED STATES MARINE CORPS

One hundred officers and nine thousand men were utilized in forming this symbol of the "first to fight" branch of the United States military establishment. The design was arranged on the parade grounds of the Marine Barracks at Paris Island, South Carolina.

The Seventy-seventh advanced 71½ kilometers against resistance, more than any other division; captured 750 prisoners, and lost 1,992 killed and 8,505 wounded, again more than any other National Army division. The insignia is self-explanatory.

75. The Seventy-eighth Division was made up of men from western New York State, New Jersey, and Delaware, and was stationed at Camp Dix, New Jersey. It went to France in June, 1918, and served in the Limey, September 16 to October 4; the Meuse-Argonne, October 16 to November 5, in which it relieved the Seventy-seventh Division on the extreme left wing of the American army. It advanced 21 kilometers against resistance, spent 17 days in quiet sectors and 21 in active, captured 432 prisoners, and lost 1,384 killed and 5,861 wounded. The original insignia was a semicircle of red and was adopted in the United States for marking baggage, but when shoulder insignia was adopted in France the lightning was added to represent the popular name of Lightning Division.

76. The Seventy-ninth Division was formed of men from eastern Pennsylvania, Maryland, and the District of Columbia and was stationed at Camp Meade, Maryland. It went to France in July, 1918, and served in the Meuse-Argonne September 16 to 30, capturing Montfaucon. It served in the Troyon sector on the heights east of the Meuse, October 8 to 25, and in the Grande Montagne sector October 29 to November 11. It spent 28 days in quiet sectors and 17 in active, advanced 19½ kilometers against resistance, captured 1,077 prisoners, and lost 1,419 killed and 5,331 wounded.

The device of this division is the cross of Lorraine, a symbol of triumph dating back to the victory of the House of Anjou over Charles the Bold, Duke of Burgundy, in the 15th century.

77. The Eightieth Division was formed of men from western Pennsylvania, West Virginia, and Virginia, and was stationed at Camp Lee, Virginia. It went to France in May, 1918, and served on the Artois front, brigaded with the British, July 23 to August 18; St. Mihiel offensive, September 12 to 14; Meuse-Argonne offensive, September 25 to 29; also October 4 to 12, and November 1 to 6. It was only one day in a quiet sector, 17 in active sectors; advanced 38 kilometers against resistance, captured 1,813 prisoners, and lost 1,132 killed and 5,000 wounded—a heavy record for only 18 days of fighting. Known as the Blue Ridge Division, its device shows three hills, representing the Blue Ridge, one for each of the States which furnished the personnel of the division.

78. The Eighty-first Division was composed of men from the two Carolinas, Florida and Porto Rico, and was stationed at Camp Jackson, South Carolina. It went to France in August, 1918, and served in the St. Dié sector, brigaded with the French, September 18 to October 19; Sommedieu sector, November 7 to 11. It was 31 days in quiet sectors, advanced 5½ kilometers against resistance, captured 101 prisoners, and lost 251 killed and 973 wounded.

This is the division which is mainly responsible for the adoption of these shoulder insignia. The wildcat, which it chose in May, 1918, is common in the mountains of the Carolinas.

The cat is in different colors, according to the brigade, as follows: Headquarters, Machine Gun Battalion, and Engineers, black; One Hundred and Sixty-first Infantry Brigade, white; One Hundred and Sixty-second Infantry Brigade, light blue; One Hundred and Fifty-sixth Field Artillery Brigade and Ammunition Train, red; Field Signal Battalion, orange; Sanitary Train, green, and Supply Train, buff.

79. Men from Georgia, Alabama, and Tennessee comprised the Eighty-second Division, stationed at Camp Gordon, Georgia. It went to France in May, 1918, the second National Army division to go overseas, and went into the line on June 25, in the Lagny sector, brigaded with the French, remaining there till August 10; Marbache sector, August 17 to September 20, including the St. Mihiel offensive; Meuse-Argonne offensive, September 30 to October 31. It was 70 days in quiet and 27 in active sectors; advanced 17 kilometers against resistance, captured 845 prisoners, and lost 1,298 killed and 6,248 wounded.

The letters "A. A." stand for All American, the name by which the division was known. These letters are in gold for officers and white for enlisted men.

80. The Eighty-third Division was formed of men from Ohio and West Virginia and was stationed at Camp Sherman, Ohio. It went to France in June, 1918, and was a depot division at Le Mans, sending 193,221 replacements to the front. One regiment, the Thirty-third, served in Italy and was in the battle of Vittorio-Veneto. The insignia consists of the letters of Ohio in monogram.

81. The Eighty-fourth Division was formed of men from Indiana, Kentucky, and southern Illinois, and was stationed at Camp Taylor, Kentucky. It went to France in September, 1918, but never got into the line. The insignia was originally adopted for marking property and baggage while in the United States.

82. The Eighty-fifth Division was formed of men from Michigan and Wisconsin and was stationed at Camp Custer, Michigan. It went to France in August, 1918, was a depot division stationed at Cosnes, and sent 3,948 replacements to the front. It was known as the Custer Division, in honor of General Custer and also the camp at which it was trained, the insignia consisting of the initials C. D. One of the infantry regiments, the Three Hundred and Thirty-ninth, served in northern Russia.

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STATUE OF LIBERTY MADE OF MEN

Eighteen thousand officers and men at Camp Dodge, Iowa, composed this picture, 1,235 feet long. From the base to the shoulder measures 150 feet; the right arm, 340 feet; the right thumb, 35 feet; length of left hand, 30 feet: the flame of the torch, 600 feet.

83. The Eighty-sixth Division was formed of men from northern Illinois and was stationed at Camp Grant, Illinois. It went to France in September, 1918, never getting into the line. It was known as the Black Hawk Division, which is represented in the insignia.

84. The Eighty-seventh Division was formed of men from Louisiana, Arknasas, and Mississippi and was stationed at Camp Pike, Arkansas. It went to France in September, 1918, and never got into the line. The insignia appears to have had no special significance.

85. The Eighty-eighth Division was formed of men from North Dakota, Minnesota, Iowa, and western Illinois and was stationed at Camp Dodge, Iowa. It went to France in August, 1918, and served in Alsace from October 7 to November 5; 28 days in a quiet sector, none in active sectors. It captured three prisoners and lost 29 killed and 89 wounded.

The insignia was evolved by two figures "8" at right angles, the result being a four-leaf clover, representing the four States from which the personnel of the division came. It is in blue for the infantry and machine gun battalions, in red for the artillery, and in black for the remainder of the division.

86. The Eighty-ninth Division was formed of men from Kansas, Missouri, and Colorado and was stationed at Camp Funston, Kansas. It went to France in June, 1918, and went into the line in August, northwest of Toul; it was at St. Mihiel, in the sector Bois de Bouchot, and in the Meuse-Argonne offensive. It was 55 days in quiet and 28 in active sectors and advanced 48 kilometers against resistance, the second best record in this respect of the National Army divisions and exceeded by only five of the A. E. F. divisions. It captured 5,061 prisoners, the third best record in the A. E. F., being surpassed only by the First and Second Divisions. It lost 1,433 killed and 5,858 wounded.

The division was known as the Middle West Division and the insignia is the letter "W," which when inverted becomes an "M." The central open space is colored to show the organization as follows: One Hundred Seventy-seventh Infantry Brigade, sky blue; One Hundred Seventy-eighth Infantry Brigade, navy blue; One Hundred Sixty-fourth Field Artillery Brigade, scarlet; Engineers, scarlet, edged with white; Three Hundred Forty-first Machine Gun Battalion, half sky blue and half scarlet; Three Hundred Forty-second Machine Gun Battalion, half navy blue and half scarlet; Three Hundred Forty-third Machine Gun Battalion, half orange and half scarlet; Signal Battalion, orange; supply Train, purple, edged with white; Sanitary Train, white, with red cross, and Division headquarters, no color.

87. The Ninetieth Division was formed of men from Texas, Arizona, New Mexico, and Oklahoma and was stationed at Camp Travis, Texas. It went to France in June, 1918, and served in the Saizerais sector August 24 to October 10, including the St. Mihiel operation; Meuse-Argonne offensive, October 19 to No-

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LAFAYETTE, THE LIVING INSIGNIA OF THE ELEVENTH DIVISION

The emblem was formed by 15,000 men from all parts of the country, at Camp Meade, Maryland. This was known as the Lafayette Division, in honor of the famous French general who aided this country during its struggle for liberty. The front row of the bust was formed of the commanding general and his staff. The time consumed in forming this seal was three hours. Two sets of field telephones were connected with a specially constructed tower 75 feet high and the photographer gave instructions as to where the men should stand. An idea of the size of the seal and of the problem in perspective involved can be gained from the fact that the "Y" in Lafayette is 225 feet long and formed of men, while the "H" in Eleventh is 6 feet long and formed by laying service hats on the ground.

vember 11. It was 42 days in quiet sectors and 26 in active; advanced 28½ kilometers against resistance, captured 1,876 prisoners, and lost 1,392 killed and 5,885 wounded. The insignia consists of the letters T and O in monogram, the initials of two of the States from which the personnel came.

88. The Ninety-first Division, formed by men from Alaska, Washington, Oregon, California, Idaho, Nevada, Montana, Wyoming, and Utah, was stationed at Camp Lewis, Washington. It went to France in July, 1918, and served in the Meuse-Argonne offensive September 20 to October 3; west of Escaut River, Belgium, October 30 to November 4; east of Escaut River, November 10 to 11. The division spent 15 days in quiet sectors and 14 in active; advanced 34 kilometers against resistance, captured 2,412 prisoners, and lost 1,414 killed and 4,364 wounded.

The fir tree was selected for the insignia as being typical of the Far West, the home of the Division, and also, being an evergreen, was emblematic of the state of readiness of each unit of the organization.

89. The Ninety-second Division was formed of colored troops from all States, and before leaving for France, in June, 1918, was divided among several camps—Dodge, Dix, and Meade containing the largest units. It served in the St. Dié sector, Vosges, August 29 to September 20; Meuse-Argonne offensive, September 24 to 30; Marbache sector, October 9 to November 11. It was 51 days in quiet sectors and 2 days in active; advanced 8 miles against resistance, captured 38 prisoners, and lost 176 killed and 1,466 wounded. The buffalo was selected as the divisional insignia because it is said the Indians called colored soldiers "buffaloes." The color of the buffalo varies according to the arm of the service.

90. The Ninety-third Division was never complete. It was formed of colored troops from all sections and went to France in April, 1918. There a provisional division was organized of these scattered units. It never had any artillery and was brigaded with the French from July 1 until the signing of the armistice, losing 584 killed and 2,582 wounded.

Owing to the fact that it was incomplete, and never participated in action as a unit, the other statistics for it are not applicable. The official insignia is a French helmet, but a bloody hand, said to have been assumed from the insignia of a French colored colonial division with which the Ninety-third operated, was more common in actual practice.

91. The First Corps—Normally a corps was supposed to consist of four divisions, but this was by no means always followed. Neither was any corps constant in the divisions assigned to it. One would be withdrawn and another substituted, according to the exigencies of the occasion. So it is impossible to give the composition of the corps which will be correct for all dates.

During the St. Mihiel offensive the First Corps consisted of the Second, Fifth, Eighty-second, and Ninetieth Divisions and the Seventy-eighth in reserve and was the right of the attack, the Eighty-second being the pivot on which the right wing turned.

At the beginning of the Meuse-Argonne operation the First Corps consisted of the Thirty-fifth, Twenty-eighth, and Seventy-seventh Divisions in the line, with the Ninety-second in reserve. On this occasion it was the left of the American army, the Seventy-seventh Division being on the extreme left, next to the French, until relieved by the Seventy-eighth, which was later relieved by the Forty-second.

After the armistice the First Corps consisted of the Thirty-sixth, Seventy-eighth, and Eightieth Divisions

92. The Second Corps contained only the Twenty-seventh and Thirtieth Divisions and operated with the British. The insignia, the figure "2" in Roman characters, having the American eagle on one side and the British lion on the other, is emblematic of this service.

93. The Third Corps during the St. Mihiel offensive was on the Meuse, making preparations for the forthcoming Meuse-Argonne drive, which it opened with the Thirty-third, Eightieth, and Fourth Divisions in the line and the Third in reserve. It was the right wing of the operation, the Thirty-third being the extreme right of the movement along the Meuse for the first few days.

In the reorganization after the armistice the Third Corps consisted of the Second, Thirty-second, and Forty-second Divisions and was stationed in the occupied German territory.

94. The Fourth Corps at St. Mihiel consisted of the First, Forty-second, and Eighty-ninth Divisions, with the Third in reserve. It was the left wing of the attack from the east side of the salient. The Eighty-ninth was next to the First Corps, on the right, while the First was the left flank of the movement, making contact with the attack from the west side the second day.

During the Meuse-Argonne drive the Fourth Corps held the St. Mihiel sector, but with different divisions.

In the reorganization after the armistice the Fourth Corps consisted of the First, Third, and Fourth Divisions and was stationed in the occupied German territory.

95. The Fifth Corps at St. Mihiel consisted of the Fourth, Twenty-sixth, and one French colonial division. It was the left wing, attacking from the west side of the salient. The Fourth Division was no the extreme left, the pivot of that flank, and the Twenty-sixth on the right, making contact with the First Division from the other side of the salient on the second day.

In the Meuse-Argonne the Fifth Corps commenced the attack with the Seventy-ninth, Thirty-seventh, and Ninety-first Divisions in

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THE AMERICAN EAGLE IN UNIFORM

Twelve thousand five hundred officers, nurses, and men at Camp Gordon, Atlanta, Georgia, made this symbol of American prowess.

the line and the Thirty-second in reserve. It formed the center, having the Third Corps on its right and the First Corps on its left.

In the reorganization after the armistice the Fifth Corps consisted of the Twenty-sixth, Twenty-ninth, and Eighty-second Divisions.

96. The Sixth Corps did not participate in the fighting. After the armistice it consisted of the Seventh, Twenty-eighth, and Ninety-second Divisions and was engaged in salvage work on the battlefields.

97. The Seventh Corps was organized to form part of the Third Army and consisted of the Fifth, Eighty-ninth, and Ninetieth Divisions, being stationed in Luxembourg as a reserve for the troops in the occupied German territory.

98. The Eighth Corps in the reorganization after the armistice consisted of the Sixth, Seventy-seventh, and Eighty-first Divisions.

99. The Ninth Corps consisted of the Thirty-third and Thirty-fifth Divisions and was engaged in salvage work on the battlefields.

100 and 101. Schools were organized in the different corps, the insignia being the same for all, except the appropriate change in the numeral.

102. Before America entered the war there were several ambulance companies of Americans in the French army; these were all taken into our army, forming the Ambulance Service, which adopted the well-known Gallic rooster as its insignia, representing its former service with the French.

103. The Advance Section, Service of Supply, was situated near the front and took the Lorraine cross for its insignia.

104. The insignia of the Tank Corps is emblematic of the fact that tanks combine the functions of cavalry, artillery, and infantry, the yellow being the cavalry color, red artillery, and blue infantry.

105. The fleur-de-lis of the Bourbon kings was taken as the insignia of troops stationed in the Paris District.

106. The insignia of the Liaison Service is taken from the French General Staff insignia, with slight changes. The members of this Service formed the connecting link between the headquarters of our forces and those of the French, British, and Belgians.

107. Considerable sarcasm has been used when referring to the insignia of the Postal Express, a greyhound at full speed. The same insignia, but with the greyhound in silver in-

INSIGNIA OF THE SIBERIAN A. E. F.

The shrapnel-shaped emblem is white, bordered with dark blue. In the center is a bear (dark blue) on its haunches. The letter "S" in white is for Siberia. (This insignia reached America too late for reproduction in color.)

stead of white, was adopted for the couriers which connected the War Department in Washington with General Headquarters in France; this was the only shoulder insignia adopted by the War Department, and its origin is due to the carrying of a small silver greyhound by the King's messengers of England (who perform the same functions as our overseas couriers), for whom it is an open-sesame when desiring quick transportation.

108. The insignia of the Army Artillery School was never approved by Headquarters. The head is that of Minerva, goddess of war.

109 100. The expedition to north Russia consisted of the Three Hundred and Thirty-ninth Infantry, a battalion of the Three Hundred and Tenth Engineers, the Three Hundred and Thirty-seventh Ambulance Company, the Three Hundred and Thirty-seventh Field Hospital, and the One Hundred and Sixty-seventh and One Hundred and Sixty-eighth Companies of the Transportation Corps. The Infantry arrived in Russia in August, 1918, the other units at varying times up to April, 1919. The expedition was withdrawn in June, 1919, returning to the United States. The expedition co-operated with the forces of the Allies in their operations against the Bolshevist troops and lost 109 killed in action and 305 wounded. The maximum strength of the expedition was 5,630 on June 1, 1919.

110. Camp Pontanezen was at Brest, through which the majority of the A. E. F. passed on their way home. The insignia represents the duck boards necessitated by the mud at Brest.

111. Before America entered the war a number of Americans were in the French motor transport service; they were later taken into the United States Army, but a number were left with the French, constituting the Reserve Mallet, so named after the commanding officer, Captain Mallet, of the French Army.

112. The Thirteenth Engineers was a heavy railroad regiment and operated around Verdun.

113. The official colors of the Chemical Warfare Service are cobalt blue and golden yellow, and were selected because they are the colors of the American Chemical Society. The shoulder insignia carries these colors on a shield.

114. The Central Records office was the clearing-house in the A. E. F. for the service records of all the men.

115. The chameleon was most appropriately adopted as the symbol of the Camouflage Corps.

116. The Railway Artillery Reserve consisted of the very heavy guns on railroad mounts which were used during all the major operations. The insignia shows a mythical bird, called an "oozlefinch," standing on a rail, with an epi (curved section of railroad track) from which the guns were fired, above.

117. A railhead is the point where the standard-gauge rails end near the front; from there all supplies are taken to the front line by narrow-gauge railroads or by divisional trucks or wagons. A regulating station is the point on a railroad where supplies, coming in bulk from the main depots in the rear, are made up for specific divisions and transhipped to the railhead. The insignia for these branches are identical, except that the border for railheads is yellow and for regulating stations is red.

118. General Headquarters was at Chaumont. This insignia was selected by General Pershing personally.

119. The Service of Supply.—Both name and insignia are self-explanatory.

A SEQUEL TO THE FLAG BOOK

THE foregoing article and illustrations on Military Insignia constitute an interesting sequel or supplement to the National Geographic Society's famous book, FLAGS OF THE WORLD, issued originally as a single number of the NATIONAL GEOGRAPHIC MAGAZINE. The magazine edition of 725,000 was long ago exhausted, but a few of the FLAG BOOKS may still be obtained from the Society's Washington headquarters (see full-page announcement elsewhere in this number). The nearly 1,200 illustrations in color of the flags of all nations, together with 300 illustrations in black and white which illuminate the FLAG BOOK, were prepared by the same artists and printed with the same care as the 119 illustrations in color of medals and insignia which accompany Colonel Wyllie's article reproduced here.

CELEBRATING CHRISTMAS ON THE MEUSE

By Captain Clifton Lisle

Late of the Headquarters One Hundred and Fifty-eighth Infantry Brigade, American Expeditionary Forces

CHRISTMAS DAY, 1918, was for many Americans their first experience of that season in a foreign land, thousands of miles from home, among a people of different race, language, and sympathy. When we realize that over two millions of our young men were in France at the time, it seems appropriate, on the approach of another Christmas, to recall that day—a day we shall remember as long as we live—our different Christmas.

At that time active hostilities were over, of course, but many combat divisions still held their lines just where the fighting had ceased on November 11. The following account tells how the men of my organization, the 158th Infantry Brigade, made the most of circumstances and celebrated their Christmas with a spirit of cheer and good-will that overcame all obstacles, even rising above the curse of Meuse rains, the amazing mud and slime of French battlefields.

A MARVELOUS TREE

The day began early for me and in a surprising fashion, to say the least, for upon waking up about dawn, I saw beside my chicken-wire bunk a Christmas tree—a real, true Christmas tree—such as might well have been found in millions of American homes, but quite the last thing one would look for on the ruined battle area north of Verdun. The little tree stood about two feet high and was a marvel of ingenuity in its trimmings. One of the men had made the whole thing, spending hours of his time upon it, keeping it a secret until he had found a chance to put it beside my bunk on Christmas Eve, as I slept.

The tree had been set in a sort of base made from a one-pounder projectile of the whiz-bang variety, which stood, in turn, on a cleverly carved stand. I believe the wood for the latter came from a cigar-box, cut and whittled into shape, then carefully fitted together and polished brilliantly in some mysterious manner. The whole thing—tree, base, and all—rested upon a moss-covered board, around the edge of which ran a tiny rustic fence of wild-rose branches entwined with ivy.

By way of tinsel, the tree had been hung with little silver balls made from the tinfoil that comes round chocolate bars. Strands of burnished wire, thin as silk threads and shining like gold, puzzled me for a long time, until I found they had been "salvaged" from the inside mechanism of broken field telephones captured in battle from the Germans. Little beads hung here and there along the branches; they were those found in the long wooden handles of German grenades. Red pods and berries from the wild rose-bushes glowed in the jolliest way among the green needles of the spruce.

Surely there never was before or since a Christmas tree quite like it or a finer array of trimmings. During the whole day it occupied the place of honor at the mess, shining away as merrily as any tree at home. That little Christmas tree beside my bunk at Réville meant more to me than any fancy tree I had ever seen. It sounded the note for the day. Christmas was to be Christmas still, all the mud and rain in France to the contrary.

A CHRISTMAS LANDSCAPE IN NORTHERN FRANCE

A fine, gray mist covered the plain, a sort of ground fog that rose from the flooded ditches and, swirling here and there in the breeze of dawn, half concealed the lowlands of La Thinte. To the east, high out of the fog, I could see the three hills that dominate the landscape—Côte du Chateau, Côte d'Horgne, and the Côte de Morimont. A light cap

Photograph from Herbert Corey

SINGING THE OLD SONGS OF HOME AND CHRISTMAS

Amid the ruins of a shattered church in northern France, these doughboys succeeded in repairing this little organ until it wheezily lent accompaniment to their joyous chorus of thanksgiving at yuletide.

Photograph from American Red Cross

CELEBRATING CHRISTMAS IN PARIS WITH THE AID OF THE AMERICAN RED CROSS

Not all of the 2,000,000 Americans in France last December had to resort to the expedients practiced by the doughboys on the Meuse. At the celebration shown here, far more important to these men in khaki than the Christmas tree and the feast was the fact that the feminine element supplied the essential spirit of "home."

of snow rested on their summits, catching the first oblique rays of the sun, until the ridges shone and sparkled like winter beacons above the shadows.

Not a house could be seen. The great plain of the Woëvre might well have been a wilderness, so effectually had the curtains of fog been draped about it.

As the sun rose higher over the distant heights of the Moselle, the mists began to grow thin, disclosing more and more of the valley. A church tower was the first sign to appear, the gilded cock of its weathervane standing proudly above the cross—the inevitable *coq gaulois,* a sure token of France.

Another steeple followed—Damvillers, Réville, Etraye, Peuvillers—I counted them one after another as they came into view, all that was left of what had once been the churches in each little red-tiled village. Here and there great rents showed in the solid masonry of their towers, while gaping voids between the buttresses of their walls allowed one to look on the havoc within—upon shattered choirs and broken chancels, a shapeless cluster of stone and glass, the shards of what once had been priceless beauty.

As the last shreds of mist drifted down the lowlands toward Gibercy and far-distant St. Mihiel, the full horror of the picture struck home. Not merely the torn and shattered churches, the piles of broken stones and roof tiles that told of one-time hamlets, not merely these had suffered, but the very surface of the ground itself was ripped and wounded beyond all resemblance of its former self.

Great shell-holes filled with stagnant water, some of them twenty feet across, yawned by the dozen where a few weeks before had been pleasant meadows. Countless smaller holes, the mark of exploding 75's, had pocked the cattle pastures until they resembled the waves of a choppy sea.

THE WASTE AND WRECKAGE OF WAR

Everywhere about me lay the waste and wreckage of war: piles of ammunition left by the retreating Hun, each shell in its basket of wickerwork; boxes of hand grenades partly opened; unexploded "duds" still half buried in the ground, as they had landed during the days of battle; discarded gas-masks, helmets cleverly camouflaged for snipers, rifles, haversacks, even rubber boots lay here and there rotting in the water-soaked holes.

Upturned trees sprawled where they had been hurled by the high explosives, while a few great stumps still reared their splintered bodies above the level of ruin about them.

Across the plain, running roughly north and south, just east of the little river of La Thinte, a line of tiny holes, scraped out by entrenching tool and mess-kit lid, marked the farthest advance of our troops when the firing had ceased on Armistice Day.

A more lonely wilderness of ravage, horror, and destruction could not well be imagined than that laid bare before me in the growing light, as the mists swirled upward to meet the dawn of Christmas Day on the topmost peak of Morimont.

Down the road that runs from Damvillers to Peuvillers, close by the Hospital aux Greves, once a German evacuation point for wounded from Verdun, I clattered along through the mist, mounted orderly beside me, our horses splashing fetlock deep in mud and water. We had left Brigade before sunrise, bound for the church at Peuvillers, where the men of the Third Battalion were holding an early carol service.

A SENTRY'S GREETING

A sentry by the roadside came to "present arms," the snap of his rifle sling striking briskly on the keen morning air. A shout of "Merry Christmas!", "The same to you, sir!" and we had parted; but the day had been marked as different for both of us. It was Christmas after all, in spite of three thousand miles of sea between us and home, in spite of the ruined battlefield of mud about us and the graves of our comrades, many hundreds of them, lying here and there along the woodlands of the Meuse, from the ordered rows on Hill 378 to the great circle of crosses that rings the heights of Montfaucon across the river, a silent token of its storming.

More men appeared, as I rode along, walking in little clusters toward Peuvillers. Some, I saw, were wearing sprigs

Photograph from American Red Cross

SHARING HIS CHRISTMAS BOX WITH A FRENCH PEASANT

The country-folk thought the Americans quite mad as they played their games, raced, and rolled through the rain and mud in celebration of the season, but the spirit of the holiday was interpreted by many generous episodes such as this.

Photograph by American Red Cross

"KEEPING OUR CHRISTMAS MERRY STILL"

Nearly every billet in France where American soldiers last year celebrated their Christmas had its own particular "Tara," battered, jiggly, and out of tune, but still with melody in its soul.

of holly or mistletoe stuck jauntily in the sides of their oversea caps. Shouts of "Merry Christmas!" could be heard, as others came up from their makeshift quarters along the way.

One group swung by me in the jolliest possible fashion, singing the good old carols with a will. They had got up before dawn and marched round their huts in the mud, singing the Christmas waits—"Silent Night," "Little Town of Bethlehem," "Good King Wenceslas," and the rest.

Everywhere was the mud; inches of it covered the road, while through it slopped the men in khaki with the evergreens in their caps and the songs of good cheer on their lips, bent upon keeping the spirit of Christmas as bright as ever it had shone at home.

CAROLS AT THE VILLAGE CHURCH

By half after 6 the village church was filled. Row upon row of men crowded the nave, their quaint leather jerkins glowing in the candlelight that shone down upon them from the chancel. High in the eastern wall a great hole opened in the masonry, marking the savage burst of a shell. I could see where it had been partially filled with holly boughs. The men had gathered great quantities of the green for that purpose on Christmas Eve.

Small bits of stained glass, all that was left of once beautiful windows, clung here and there to the twisted bands of lead that latticed the carved stonework of the arches. These windows in chancel, nave, and choir had been the glory of the church once, the offering of praise and devotion from the hand of some patient workman-artist who had fitted them together centuries ago, bit by bit, each glorious patch of color in its own appointed place, held there by the metal strips, the whole completed picture in its lacelike frame of chiseled stone and sharply pointed arch. Now they were gone, all their glory reduced to a few bright stars of vivid color that caught the morning glow and pierced the twilight of the nave with spears of light.

The little church was gay with greens. All Christmas Eve the men of the bat-

talion had been at work, some cutting the holly and dragging it in from the woodlands, others wading out into the waters of the marsh and climbing great poplars after mistletoe that grew in clusters high up among the branches. Ivy had been gathered in long ropes and twined about the pillars of the nave. The altar, chancel, choir, and transepts, all were fresh and gay with green. The very walls were hung with it, so that I had to look twice to see the shell-scarred plaster beneath or the tattered Stations of the Cross in their frames.

AN UNFORGETTABLE SCENE

Cedar, spruce, holly, ivy, mistletoe, everywhere the Christmas greens, everywhere a clean, fresh breath of out-of-doors, until the old and broken church must have thought itself young again, must have stirred to feel within its walls a spirit of reverence that had already softened the scars of war, hiding them under the holly wreaths and garlands.

The service was short and simple; just the singing of a few old carols, then the celebration of the Holy Communion. The fact that the form used followed that of the Episcopal Church made no difference whatever to the men of various denominations in the nave. It was curious to note how the broadening strain of battle, the common hardships and sacrifice, had done away with all feeling of sect.

Later in the day, other services were held at Réville and the villages round about, but in spite of more elaborate singing and the attendance of the regimental bands, the impressive effect of the carol service at dawn was lacking.

The scene in that ruined church at Peuvillers was one never to be forgotten, as the growing light sparkled through the remnants of old glass upon the crowded uniforms half hidden along the shadowy vaults of the aisles. It was a picture from the Middle Ages, accentuated by the white vestments of the clergyman standing high in the tapered chancel.

"FRIEND OR FOE"

Close by the church door, as we were leaving, I saw the men gathered round a granite boulder, a sort of rough monument. Evidently it had been placed there in the graveyard by the enemy during the period they had held the plain of the Woëvre. The inscription was carved boldly across the face of the rock in German. It read:

"Whether it be friend or foe,
In death alike united.
To those who fell in defense
Of their fatherland,
1914."

By a curious coincidence that monument of fellowship and forgiveness between foes, a rare enough thing in this war of bitter feeling and national hatred, stood in the very churchyard where for the first time in many months our men had had a chance to attend divine service.

Taken in connection with the ending of the war so few weeks before and the Christmas carols of peace and good-will we had just sung, it went a great way toward showing us that some of the Huns, at least, had been men who could respect the dead and appreciate the sacrifices of patriotism, regardless of country.

A STADIUM OF MUD

By noon the cheering effect of sunshine had long since departed and Christmas Day returned to the usual drizzle of northern France. Had it been possible to produce more mud, or deeper mud, or sloppier mud, the Meuse Valley would undoubtedly have done so; but the limit had been reached some weeks before.

The fields were utterly impassable. Where the ground had not been carved into huge shell craters full of water, it was just brown and yellow clay of a consistence that stuck to our hobnails and would not let go. That was bad enough, but it kept on increasing about our shoes so alarmingly at each step that we had to carry a stick and pry off great hunks of it every minute or come to a standstill through lack of power to move our feet.

The roads—what four years of war, lack of care and the shell fire of a modern battle had left of them—were somewhat better. They were muddy all right, but only to a depth of two or three inches, and the mud was of the soft and slushy variety, resting on more or less solid underpinnings. That was a great help, for we could slop along comfortably enough without being pulled to a halt. It is no

exaggeration to say that we Americans had not known what mud could be like until we found it at its worst in the lowlands of the Meuse and Woevre.

The plans for Christmas Day called for field sports in the afternoon. That seemed to be as near an approach to a real home Christmas as we could come under the circumstances. The prospects certainly were far from encouraging, but, be it ever said to the credit of the American doughboy, he rose triumphant over all obstacles. The first problem was where to hold the sports. Very clearly we could not use the fields, for no one can run where he cannot walk, nor jump where he can scarcely crawl. In the end, we had to fall back upon the road.

The hundred-yard dash, the two-twenty, the running broad jump, the high jump, potato race, sack race, three-legged race, signal relay, Yorkshire wrestling—every last man in the outfit went in for something. Winners, led by the sergeant-major, strove through the mud and rain against the Dashers, captained by the first sergeant of brigade.

The deeper the mud, the higher ran the rivalry, the harder struggled the men, until the shell-torn hollow, with its little ruin of Réville, echoed to the strangest cheers it had ever heard.

The Brigadier himself came down from his shack on the hillside, plowing through the mud and crawling round shell-holes until he had reached a vantage point on the bank above the road. Here, the man who had taken Grande Pré, and thus broken the keystone of German resistance in the Meuse-Argonne offensive, stood all afternoon in mist and driving rain, shouting encouragement to the racing men with the same spirit that had led him but a few weeks before to take a first-line battalion forward in person when it seemed impossible for anyone to advance.

A MYSTERY TO THE COUNTRY-SIDE FRENCH

As the sports grew keener, our cheering and noise grew louder, the hip-hip-hurrahs and three-times-threes attracting the attention of what few French refugees and poilus were in the neighborhood. They stood for a while along the roadside vainly trying to make out what it all could be about. It was too much for them, however. Clearly carol singing at dawn, then mad racing and leaping and tugging on a rope in the mud was beyond their ken. With significant shrugs and shaking of heads they went away.

They had put us down as mad, quite mad; but, then, all American soldiers seem so to them, and it did not make much matter to us. We left them to their own celebration of the day with vin rouge, stewed rabbit, and snails. The games went on with even louder shouts and hip-hip-hurrahs in the good old Anglo-Saxon way.

MUDDY FIELDS MAKE FOR FUN

The best fun of all were the sack race and three-legged race, for they were run off in the fields, where the mud and slime and ponds that had been shell craters only added to the comedy. Such slipping and sliding and falling in the mire could not well be imagined. It seemed as though all the rain and soggy discomforts of the previous weeks had been but a preliminary setting of the stage, a preparing of the ground for the afternoon's fun.

We could forgive the country of the Meuse a lot, even the mud somewhat, while we watched the comical antics of doughboys in gunny-sacks hopping, wobbling, sprawling head first over the course. It was a real course, too, in the way of hazards! Each contestant's friends and backers cheered him on his way with fervent cries and entreaties, one Irishman urging his favorite to "Lep to it like a man, for the love of God and County Mayo!"

The last two events in the games were a pie-eating contest and a tug o' war. Sassamann, from Missouri, competed with Helm, from Pennsylvania, and the man from Missouri won. Arms locked behind backs, both men knelt in the mud, the pies resting on the ground before them. At the word to begin, they bent over and the race was on. It was an excellent and a very practical demonstration of the value of chewing. Fletcher would have appreciated it keenly.

Missouri's son went to work in slow and deadly earnest, chewing each hunk well and swallowing it before bobbing for another, while Pennsylvania's repre-

THE CHRISTMAS BOX FROM HOME

There were seas of mud and a never-ceasing fall of rain throughout northern France during the last week of December, 1918, but no external incidents could dim the enthusiasm of those intent upon celebrating Christmas in the familiar American fashion.

sentative attempted to win by a spurt. That bolt was fatal to success, for before long he had bitten off more than he could chew in a very literal sense of the words.

The tug o' war and Yorkshire wrestling over and the signal relay run far up the hillside and back, we left the muddy stretch of road and climbed to the little level where we had been billeted in shacks and dugouts vacated by the Germans during our advance in the last days of the war. We had begun long before to plan this Christmas, and its crowning feature was to be the dinner.

MAKING A MESS HALL

There were two requisites for that—something to eat and a place to eat it in. Uncle Sam, all the home newspapers to the contrary, could not be counted on to furnish us much of either. Experience had taught us a lot and—well, "corn willie" in the rain seemed but a poor substitute for the turkey and plum pudding of the old days; consequently we had begun work a fortnight before on our mess hall.

There was, as a starter, a shack that combined a leaky roof partially knocked in by a shell, with one end wall and glassless window. There were, beside, sufficient uprights to hold the sagging roof in place. That was all. The building had been started by the Germans, but never completed. It looked hopeless and very nearly was so. We built the mess hall, nevertheless, thanks to the magic of "salvage"—the modern army's substitute for Aladdin's Lamp.

The roof presented the most serious problem, as it never stopped raining on it and never could be expected to. We solved it finally by tearing away the badly splintered boards, replacing them by others salvaged from a near-by German dump, and covering the whole affair with a huge piece of water-soaked carpet that had once graced a village parlor. We battened it down with salvaged nails and rope for all the world like troopship

hatches in a heavy sea. Strangely enough, it turned the weather in a way contrary to what we had dared expect.

The walls were easy. Lumber was plentiful at the captured dump and a four-line team furnished transportation. Last of all came the question of windows, and that was a puzzler, for a pane of unbroken glass was rarer than hen's teeth in all that shell-crushed plain. The men were patient, however, and contrived to locate a sufficient quantity, searching for days throughout the shelters and dugouts that burrowed deep into the hillsides.

Our carpenter was, by all odds, the hardest-working person at Brigade, for while the other men were gathering material he was always kept busy trying to hold up his end of the job, and he succeeded. On Christmas Eve the last board had been nailed on the walls and the last bench completed. We really had a mess hall that was worthy of the name.

All afternoon we had lugged in the greens and hung them everywhere, until the rafters and unpainted walls were hidden under an amazing curtain of spruce boughs, pines, cedars, holly, mistletoe, and ivy. The old verse was literally true:

> "Lo, Christmas Day is here at last,
> Let every one be jolly;
> The posts are all with ivy dressed,
> And all the walls with holly."

Rickety German trench stoves about two feet high stood in each corner. When they did not smoke too much, they kept the place comfortably warm, only threatening to burn us up at times, greens and all.

TARA, THE PRIDE OF THE MESS HALL

Tara, the pride of the mess, stood in a cleared place at one end, apart from the long tables and benches we had built out from the walls. Tara was a piano, a war-scarred veteran. Tara by name, because having lost his entire front casing in action, he looked more like a harp than anything else and, thanks to a weakness in the legs, had to lean against the wall for support.

Tara had fallen upon evil days before coming into our hands. Originally French, four years of German pounding had left their mark upon his keys. Then had come the Allied shelling, and Tara, with front boards shot to splinters, had stood for many weeks while the constant drizzle of the Meuse had soaked down upon him through the roofless jumble of stone that had been a house. The effect was that Tara's keys were mute, wedged solidly together, in fact—that is, until the trench stoves had got in their work.

We had carried Tara with infinite trouble to the driest of our dugouts—the one where the moisture only dripped from the roof at one end. Here we had surrounded him with trench stoves all stoked to the limit and going full tilt, with a man specially detailed to keep up the fires. The keys, one at a time, had responded to this heroic treatment, until now, on Christmas Day, Tara had once more found his soul.

SENDING A TRUCK ACROSS FRANCE

The problem of food had seemed overwhelming at first. We might well have been in some mountain fastness, for all the free communication there was with the outside world. Such roads as there were presented more the appearance of quarries than anything else. Railways could not be considered. Our quartermaster depot had trouble enough in getting the very necessities of life out to us, let alone Christmas luxuries. Finally we cut the Gordian Knot by attempting the impossible and sending our little Ford truck all the way across France, from the ruined hills of Verdun, on past Ste. Ménehould and the shell-torn forest of the Argonne; then east to the great Route Nationale and Paris.

The Brigade Fund, helped out by a donation from the officers, had been put to good use and few, if any, troops of the A. E. F. still standing by their arms on the old battle line had a finer dinner than that we saw spread out before us as we entered the mess hall after our Christmas games.

The men sat down on both sides of the rough boards that served as tables. When all had found a place, the General himself entered the room. He spoke but a few words; yet no man present, officer or private, will ever forget the scene. It was a soldier's greeting to soldiers, just

the man who had led in battle wishing those of us who had served under him the best of luck and a Merry Christmas.

He told us to remember the day, to keep it fresh in our minds as one Christmas that had been different. He closed with a word about our dead—those who had died, many hundreds of them, our own friends, not because their sacrifice had been necessary at all, but through lack of proper training and preparation in the years before. Every man who had faced death in battle knew that the General spoke the simple truth.

A CHRISTMAS DINNER SURPASSING ALL DREAMS

In contrast to our usual bully-beef and potatoes, this Christmas dinner far surpassed anything that we had dreamed of. Turkey—yes, real American turkey—was there; mashed potatoes, tomatoes, stewed corn, celery, apple pie—it would have been a credit to the best chef in New York—yet every bit of it had been fetched at unbelievable trouble all the way from Paris; then cooked in an open shed, where the rain dripped down through the holes in the roof upon the small field range that smoked and sputtered in the mud below. Cigars and cigarettes had reached us from the "Y," together with a fine supply of candy.

No one can appreciate just what that Christmas dinner really meant to us unless he realizes what had gone before. It sounds like the usual dinner at home, but one must remember that our surroundings were very far from usual. Aside from any of the fighting, any of the horrors of Montfaucon, Nantillois, Wadonville, Hill 378, and the rest, this Christmas dinner was the very first meal my men had been able to eat in four months with a place to sit down together and a roof to cover them.

Since September they had stood in line, day after day, under constant rain, waiting for each meal, usually well soaked and muddy. When their kits were filled they had still stood, of necessity, in the rain, or found what uncomfortable shelter they could beneath some leaking shack or dugout pent. Now, on Christmas Day, we were in a warm room, sitting at tables and a real feast laid out before us.

There was no thought of a mess line. The cooks and kitchen police, though it meant far more work for them, would not hear of that. Volunteers hurried in with the food hot off the field range and served it to us at the tables.

IN THE SPIRIT OF THE OLD SONG

It was really an old-fashioned feast, taking the late afternoon and a good part of the evening before coming to an end. Then it was that Tara came into play, finding his long-lost soul, as though it never had fled beneath the scourge of shrapnel and H. E. and endless rain.

The more we hammered away at him, the looser grew his keys, until at last only a few notes stuck together at a time. 'Harry Lauder," "Where the River Shannon Flows," even "Rosy O'Grady," all the old songs of home and Christmas were sung over and over again. An occasional clog or jig, got up offhand, added to the fun. The players took turns, but Tara held out to the last, his blackened keys clicking and clacking away at a great rate, while all his mysterious insides jumped and jiggled about, exposed to public view in a scandalous way.

Like everything else, Christmas came to an end at last. The mess hall was deserted and Tara left leaning against the wall once more, as mute as his famous namesake. The trench stoves burned a while, then smoked themselves out. In the morning we had work before us, lots of it. Sudden orders had come in for a march to distant billets. Two days after Christmas we made packs and early in the morning marched away. The mess hall had been used just once. "C'est la guerre!"

That was the last we ever saw of Réville; but the picture of our Christmas Day there in the rain and mud of that shell-torn hollow is one that will never fade. It proved, for one thing, that it takes a lot to down the doughboy. It takes more than war and hardship and a longing for home, since in the face of all these, from the little tree at dawn and the carols on to the last cracked note from Tara, we had held our sports and made our feast with the best of them, as the old song says, "keeping our Christmas merry still!"

PLEASANT PASTURES FOR THE CAMELS OF THE FROZEN NORTH: A HERD OF ALASKAN REINDEER GRAZING ON A WIND-SWEPT, SNOW-COVERED HILLSIDE

These are a few of the 160,000 animals in Alaska which constitute the fruitful increase of 1,280 deer imported from Siberia less than 30 years ago.

THE CAMEL OF THE FROZEN DESERT

By Carl J. Lomen

With Photographs by Lomen Brothers, Nome, Alaska

WHEN the circus comes to town and the steam calliope, calling with its raucous but seductive voice to old and young alike, allures the crowds to gaze in wonder at the grand parade, it is the camels and elephants that sweep the youngsters along crowded pavements in a wave of deepest interest.

Not even Sheba's queen, enthroned in state upon her regal car which milk-white horses draw, and dressed in jeweled robes that scintillate with rainbow beams, can prevent the tan-cheeked, barefoot boy or his urban counterpart from serving as an escort for those awkward beasts whose very shuffling tread bespeaks a haughty dignity. Strong iron bars imprison Leo and his tawny mate, but the camels can be studied at first hand.

What matters it that somewhere beneath the Syrian sun or beside the storied walls of far Peking the philosophic ship of the sandy desert calmly chews his cud unnoticed by the passing throng, or that in tropical Ceylon or India the plodding pachyderm belongs to the Labor Union rather than to the Players' Club? The commonplace has only to be transported to another clime to make it interesting.

THE ALASKAN'S OX, SHEEP, AND HORSE IN ONE

Not less interesting than the camel of the Sahara or the Gobi is the reindeer, the camel of the frozen desert in America's farthest north. The average American probably considers the reindeer only as the picturesque feature in an otherwise featureless Arctic landscape, or as the draft animal for a fur-clad foreigner with high cheek-bones and matted hair.

But to Alaskans, Eskimos and whites alike, reindeer are today what lowing kine are to the dairy-farmers of Holland, humble sheep to the Australian wool-raiser, or bulky shorthorns to the Texas cowman—utility untinctured with romance.

Within a single generation, "Cupid" and "Vixen" and "Comet" and "Prancer," those semi-mythological companions of ruddy Saint Nick which spring into action with the very first remembered syllables of the famous Christmas poem, have become the staple live stock of the Far Northwest of the American continent. Santa Claus may use a motor truck or even an airplane in making his city deliveries, but in Alaska the reindeer is coming into its own.

FIRST REINDEER IMPORTED 27 YEARS AGO

In Europe and Asia the reindeer was domesticated in prehistoric times. Not so in America, where this species of the deer family, the *Cervidæ*, were known as caribou, and are still so known, to distinguish them from the domesticated and imported animal.

The first importation, consisting of only 162 reindeer, was landed at Teller, Alaska, on Independence Day, 1892.* During that year and the decade following, 1,118 more were imported from Siberia and landed on the shores of Port Clarence Bay. The reindeer imported from Norway in 1898 were all draft animals, steers, and are now extinct.

From the outset the deer thrived, and as the number increased, other herds were formed from the mother herd at Teller. Roaming the frozen wastes north and south, from Point Barrow to the Alaskan Peninsula, there are today more than a hundred herds, aggregating about 160,000 deer. It is estimated that during this period more than 100,000 have been killed for food and skins; so that in less than thirty years the increase has been more than two hundred fold.

Although the Alaskan reindeer industry is still in its infancy, it is rapidly becoming firmly established.

*See "Reindeer in Alaska," by Gilbert Grosvenor, in The Geographic for April, 1903.

REINDEER SLEDS LADEN WITH DEER MEAT FOR THE NOME MARKET

Note the "velvet" of the horns in process of shedding. The draft animal to the rear is wearing the Lapp style of harness, which consists of a single tug. This is gradually being discarded throughout Alaska in favor of the single-tree harness.

LED TO WATER, THE REINDEER PROVES NO MORE AMENABLE TO PERSUASION THAN THE AXIOMATIC HORSE WHICH REFUSES TO DRINK

The reindeer is not, however, highly prolific. The female deer usually gives birth to but one fawn a year, and if there are twins, one (or both) of the young is liable to die.

The rapid increase is due to two facts: One is the remarkable hardihood of the fawns, which only a few hours after birth are strong and fleet of foot. The contrast between the self-reliant reindeer fawn and the weak, knobby-kneed colt or calf is striking and has much to do with the tendency of reindeer herds to increase rapidly in spite of a low birth rate. As the social worker would say, the infant mortality is slight.

The other factor in the rapid increase, and an illustration of the fact that early fecundity is not entirely a tropical trait, is the remarkable fact that yearling reindeer frequently reproduce.

Extreme cold rarely kills off the very young. The rigors of the Arctic and the forcing processes of tropical heat both serve to protect from extermination the fauna of the respective zones of each.

Conducive to the increase may also be mentioned the fact that the herders have learned to keep a sharp lookout for strayed or lost animals, and to afford the herds all possible protection from wolves, lynx, and other predatory animals. Special care is given the herd during the fawning season, which commences usually with the first full moon after the middle of April and lasts throughout the month of June.

WHERE THE REINDEER GETS ITS NAME

The reindeer has been aptly named. Of all ungulate, ruminant, and gregarious animals, it is one of the most particular in the selection of its food. It pastures during the summer on tender mosses, lichens, mushrooms, algæ, and grasses. Its typical home is Lapland. In the Lapp tongue the word "reino" means pasturage, so that the word "reindeer" means an *animal that pastures*. During the long winter the deer subsist entirely upon moss, which abounds on the vast tundras and hills of Alaska, so that the deerman has almost unlimited grazing land for his herds.

TWO CHAMPION REINDEER TEAMS AND THEIR OWNERS

Efforts are now being made to improve the strain of the domesticated reindeer by cross-breeding with the caribou, of which there are two important species in North America—the "Woodland" and the "Barren Ground." The caribou lacks the symmetry and grace of the true deer, but is strong and heavy, the larger males weighing from 300 to 400 pounds.

A FOREST OF HORNS: BOTH THE MALE AND FEMALE REINDEER HAVE ANTLERS

Note the number of albinos in this flock. When the reindeer were first introduced into Alaska, white deer were about as rare as black sheep; but they are growing more numerous from year to year. It is the belief of experts that the presence of distinctly colored animals is largely due to their domestication.

GLASSES OF FASHION AND MOLDS OF FORM IN ARCTIC ALASKA

The Eskimo uses the hide of the reindeer in the manufacture of his principal article of attire, the *parka,* a combination coat and overcoat with hood attached. The sinews of the deer are used for thread. The ideal equipment for winter travel consists of two *parkas,* one worn with the fur turned in, the other with the fur out. The hood is trimmed with wolverine, to which frost does not adhere.

A DOE AND HER OFFSPRING

Taking the government's estimate of the value of a reindeer as $25, the one hundred herds of Alaska are worth $4,000,000. Not only is there a future for the reindeer industry as a food resource, but the hides offer an opportunity for the development of a glove industry equal to that of Sweden.

It has been estimated that there are 200,000 square miles of this dry, coral-like moss in Alaska—enough grazing land for 10,000,000 deer. This class of pasturage is suitable for no other animal except, it may be, the musk-ox; hence these thousands of square miles of Arctic Alaska, were it not for the reindeer, would prove practically valueless and could not be permanently inhabited.

There is only one drawback to this calculation: Inevitably the reindeer seek the coast in summer, to escape the swarms of mosquitoes and to lick up the salt deposited by the ocean waters. The Lapps have a saying that "mosquitoes make the best herders in summer time."

It is believed, however, that if salt can be supplied in sufficient quantity inland, and if the deer can be taken to the hills, where land breezes will serve the same purpose as the sea winds in blowing away the mosquitoes, the animals can be persuaded to overcome their inbred instinct for a seaside excursion in summer.

One speaks of persuading because the Lapps, brought 10,000 miles from Norway as herders, and their understudies, the Eskimos, do not drive, but lead or follow the herd. The reindeer selects his own mossy pastures and goes unerringly to his breezy shores and salty waters with the coming of summer.

CURIOUS CHARACTERISTICS OF THE REINDEER

The reindeer constitutes the *genus rangifer*, differing from that of ordinary deer in the important particular that both sexes have antlers, which are shed annually.

A study of the physical characteristics and the habits of this unique brand of live stock forms a fascinating subject for the deerman, only some of which can be mentioned here. He has observed that the antlers of the female remain much later in the spring than do those of the male, thus affording the mother a weapon with which to drive away the stronger

A MOUNTED COURIER OF THE FAR NORTH

Reindeer were introduced into Alaska by the government in order to insure a food supply and economic independence for the natives living in those sections of the territory where the deer could be propagated. A number of Lapps were induced to settle in Alaska at the same time. They have taught the Eskimos how to care for the herds and how to handle the deer as draft animals.

male from good feeding places for her young; that the large antlers and brow-tines of the deer are not used, as stated by many writers, to scrape away the snow and uncover the moss, but that the deer use their hoofs to break the crust and paw their way to their feed; that while in motion a herd produces a peculiar sound, similar to that of an approaching hail-storm, a crackling sound, which some have claimed arises from the striking together of the horny toes, but which in fact is due to the peculiar anatomy of the animal at the fetlocks, and is produced by some sinew at that point when the foot is in action.

Unlike most animals, the reindeer prefers to travel against the wind. Heavy

AN ALASKAN AND HIS DUMB FRIEND, WHICH SUPPLIES FOOD, CLOTHING, AND TRANSPORTATION

One of the advantages which the reindeer herder enjoys over his southern brother herder of sheep and cattle is that in times of blizzard the deerman is not forced to remain with the herd. After the storm passes, he is able to estimate with approximate accuracy the location of his charges; for the reindeer, unlike most animals, prefers to travel against the wind and at uniform speed. The neck and shoulders of the deer are protected by a heavy growth of long, whitish hair.

hair about the head and shoulders and a growth of long, whitish hair under the neck are special protections against cold. So sure are the herders of this animal instinct that during the severe blizzards which often sweep over the country they can seek cabin shelter for themselves for days and still be able to calculate the exact direction and the approximate distance to the point where they will find their herds when the storm has passed.

THE WARBLE FLY, DREADED PEST OF THE REINDEER

A pest with which the reindeer herdsman must reckon is the warble fly, a sort

TRAVELING AT EXPRESS SPEED IN ALASKA

In a report to the Department of the Interior, one of the Bureau of Education's superintendents in Alaska states that in eight years he traveled more than 25,000 miles on tours of inspection, 11,000 of which were behind reindeer. He says, "I consider deer better than dogs for three-fourths of the traveling I have to do. In addition to the greater comfort when traveling with deer, they are more economical, for the deer finds its own feed."

of Subway tourist among ticks and jiggers. The aid of government specialists is not yet available and the herder does not know how to combat this insect, whose fiendish ingenuity still baffles him.

The animal tick, which is about the size of a horsefly, first lays its eggs on the fetlock of the deer, which thus becomes the Achilles' heel of the Arctic speedster. When the deer licks them off, the eggs are lodged in the animal's mouth or throat, where they hatch into worms, which work their way up along the neck and down the back of the animal, under the skin. Having thus made life miserable for their host, the worms finally gnaw or bore their way through the hide and become flies.

Although not deadly, the warble fly causes much irritation among the reindeer and reduces their vitality. So sensitive have the animals become to this pest that the buzz of a fly of any kind causes a noticeable nervousness among the entire herd.

The warble fly is a handicap to the commercial deerman because the little worms, piercing the skin to escape, leave the hide punctured with tiny holes which lessen its marketable value.

THE MAKING OF AN ESKIMO PARKA

To the Eskimo the reindeer hide is less seriously impaired. His principal use of the hide or pelt is to make the warm, hairy *parka,* a cozy coat with hood attached. The hood and sleeves are sewn on with reindeer sinews, which do not rot like ordinary thread. The late Walter C. Shields, Superintendent of the Northwestern District of Alaska, Bureau of Education, in his published poem, "The Ancient Ground," gave the following graphic description of the making of the sinew thread:

"Behind the rest, on heaped up skins,
The oldest hag crouched on her shins.
Her teeth were worn down to her gums,
And rawhide thongs had scarred her thumbs.
She split a sinew strip in two
(Back sinew from the caribou);
Between her sunken, oozing lips
The stringy strip of sinew slips.
She mumbles it 'twixt tongue and jaws,
As through her mouth each strip she draws:
She rubs it with her greasy claws
Until each soft and moistened shred
Becomes a long and pliant thread,
Rubbed round upon her cheek."

REINDEER DIGGING IN THE SNOW FOR MOSS

The herdsman in Alaska has almost unlimited grazing land for his deer. An area of more than 200,000 square miles of land is covered with the coral-like moss on which this animal thrives. The deer uses its hoofs to break the crust and paw its way to the moss.

PICTORIAL BULLETINS ON THE EARLY LIFE OF A FAWN

The young animals are noted for their extraordinary hardihood. A few hours after birth they are strong and fleet of foot. Extreme cold rarely kills the fawns, which are usually born between the first full moon after the middle of April and the end of June.

REINDEER MEAT DRESSED AT NOME, ALASKA, FOR MARKET IN THE STATES

The meat has a flavor between beef and mutton. The carcass is frozen with the hide on and shipped to Minneapolis or Seattle for distribution. It is estimated that the tundras of Alaska can support 10,000,000 reindeer.

Using her arms, hands, and fingers as anatomical measuring sticks, the Eskimo seamstress makes the hood a perfect fit, and trims it with a fringe of wolverine. The finest traveling outfit contains two *parkas*—one worn with the fur in and with the hood trimmed with wolverine; the other with the fur out and trimmed with wolfskin.

As frost does not adhere to wolverine fur, the latter is especially desirable to wear next to the face. The tiny hairy icicles formed on other fur from congealed moisture of the breath are most uncomfortable. The longer hair of the wolfskin trimming blows across the face, thus protecting it from icy blasts. Both *parkas* are worn at the same time.

GIRLS USE THEIR TEETH TO SHAPE BOOTS

In northern Europe reindeer gloves are highly prized by reason of their warmth and because moisture does not injure them. They command three times the price, on the European market, of their closest rival, the heavy mocha glove. The Alaskans do not use reindeer hide for gloves, but they do make from it mittens and a warm boot or *muk-luk*. The soles of the muk-luk are ingeniously shaped to fit the foot by expert Eskimo girls, whose crimping tools are none other than their teeth.

The Bureau of Education, acting under the Department of the Interior, first introduced the reindeer into Alaska, not as a live-stock proposition, but primarily to assist the Eskimo (who, like the Indian, is the ward of the Interior Department), and the industry has been developed by that department.

The Eskimos own approximately 70 per cent of all the deer in Alaska, and the Bureau of Education has been much handicapped by the smallness of the $5,000 annual appropriation granted in recent years to care for the industry, instruct herders, and administer general supervision over herds which cover a stretch of territory more than a thousand miles in extent.

DEER BROUGHT TO ALASKA TO AID THE ESKIMO

Congress would do well to double the amount, for it is safe to say that few, if any, appropriations made by that body bring as big returns as the "reindeer appropriation" handled by the Bureau of Education.

ESKIMOS PREFER THE REINDEER TO THE DOG FOR LONG-DISTANCE TRAVELING IN THE FROZEN NORTH

While the usual rate of travel is from 25 to 35 miles a day, a span of racing deer has made ten miles in less than 28 minutes, pulling sled and driver.

A HERD OF REINDEER NEAR GOLOVIN BAY, ALASKA

While the doe is not prolific, usually having only one fawn a year, the Alaskan herds have increased remarkably in a quarter of a century. The explanation lies in the fact that the yearling deer frequently reproduces. If properly tended, a herd will double in number in three years.

CONTRARY TO POPULAR BELIEF, THE REINDEER DOES NOT EMPLOY ITS ANTLERS IN REMOVING THE SNOW FROM ITS MOSSY PASTURE

The horns of the mother deer are of service to the fawn, however, for with them she drives away the males from the best feeding places, thus insuring the young animal a safe grazing place.

Secretary Lane has said that the importation of the reindeer is "the one constructive thing done by the government for Alaska in nearly half a century."

When the white man began to hunt the whale, the walrus, and the seal, in the Bering Sea and Arctic Ocean, he became a competitor of the Eskimo. The white man's facilities for bagging this game soon put the Eskimo at a hopeless disadvantage. Fortunately the government awakened to the necessity of providing these wards with a means of livelihood in lieu of what they had lost.

Dr. Sheldon Jackson was the pioneer in realizing the possibilities of the reindeer industry for this purpose. He appealed to Congress, but did not await its action. The first reindeer brought to Alaska were purchased with funds raised by him through private subscription. The government in 1892 appropriated $6,000, the first of a series of annual appropriations made to continue the importations.

Thus it came about that the Bureau of Education first fostered the reindeer industry as a means of vocational education for 20,000 Eskimos who otherwise would have had to be supported or left to starve. The present need is for a scientific study of the animal. The importance of the industry demands it.

Of late years the industry has been taken up by a number of white men as a private enterprise. No objection to their entering the reindeer field has been raised on the part of government officials, as the development of outside markets for reindeer meat, skins, and by-products will thereby be promoted; but, in order to protect the Eskimo, a rule has been established that female deer may not be purchased from the natives.

THE MEAT OF THE DEER AND ITS INFANT PACKING INDUSTRY

A number of Lapps, originally employed by the government to teach the Eskimos the occupation of herding, were permitted to borrow not to exceed 100 deer each. In five years they were to return a like number, keeping the increase. From one such loan in 1901 a count of 800 was made in 1908. During that year the 800 animals were equally divided into two herds, one of which now numbers not less than 10,000.

The meat of the deer is not "gamy" in flavor. It has been most aptly described as having a flavor between that of beef and mutton. The animal is butchered by modern methods, after which the carcass is frozen with the hide on and shipped to distributing points in the States, principally Seattle and Minneapolis. There it is kept in cold storage until sold for food.

Female deer are seldom killed. Of the males a certain number are set aside for breeding purposes and the rest are fattened as steers. The average life of a deer is about 15 years, but steers are butchered when three years old.

Alaskan records are not sufficiently complete to show the number of fawns that the average female deer will bear, but it is estimated to be twelve or more. A well-kept herd will more than double itself in three years.

THE APPEARANCE OF THE REINDEER

Most reindeer are dark brown in color, but the herds contain some spotted and white animals. White deer formerly were about as common as black sheep, but are becoming more numerous. It was feared that the increasing prevalence of these variations might indicate a weakening of the stock, just as the increase in the number of deformed animals is due to inbreeding; but experts say not. Their theory is that the presence of the distinctively colored animals is due to their domestication, and that this fact makes for a greater birth rate, because of a process of natural selection by which some of the females will mate only with the white or spotted deer. Returned to a wild state, they would again take on a uniform color. Shortly the experiment is to be tried of introducing caribou* blood into the herds, in the hope that a larger animal will be produced and the breed improved.

The reindeer has been called the camel of the Far North. It serves as a beast of burden, and is to the nomad of the north what the camel is to the nomad of the southern desert. Like unto its southern

*See "Wild Animals of North America," published by the National Geographic Society.

THE RACETRACK OF THE REINDEER IS A TRACKLESS WASTE

"brother" that "lives on its hump," the reindeer draws on its supply of fat in times of want. For long-distance travel the Eskimo prefers the reindeer to dogs, as the former finds its own feed; not so the dogs. With improvements in harnesses and sleds, the Arctic "camel" has become more and more popular in a transport capacity. The burden carried on a sled drawn by a single deer should not exceed 200 pounds.

Surprising records have been made in long-distance travel and also in speed tests. Indeed, for short distances, the deer can outrun the dog or horse. At an annual reindeer fair in Alaska, two deer, pulling a sled and driver, made five miles in 14 minutes 32 seconds, and ten miles in 27 minutes 20 seconds.

The usual rate of travel on long-distance excursions should be from 25 to 35 miles a day, if the welfare of the deer is considered. Even then the deer can only be employed continuously in that fashion for from 15 to 17 days. While traveling it has no chance to graze. When compelled to do this at night it loses sleep. In consequence the store of fat which encases its body and furnishes reserve food and strength becomes exhausted.

The Eskimo never prods or crowds the deer after it indicates its desire to quit the journey. He unharnesses it and leaves it to find its way back to its herd, which it usually succeeds in doing. If it does not succeed in this, it is likely to join another herd.

The ownership of reindeer is indicated by ear-marks. By marking the ears the reindeer of the various herds are distinguished, and annually there is a general reassignment of animals to their owners.

Several years ago the government asked for bids for mail delivery in Alaska by airplane. Sand-dune and ice-floe are already being traversed by winged messengers whose only footprint is a fleeting shadow. But there will always be a great and increasing need in Alaska for the reindeer—the camel of the frozen desert. Kriss Kringle's steeds will continue to be used in fiction and romance, but to the disillusioned more essentially as an animal of the greatest practical utility, an animal of which it has been said that "it can be used to the last hair."

A Christmas Message from the World's Greatest Artists
TO EVERY LOVER OF BEAUTIFUL MUSIC THE GREAT ARTISTS WHOSE NAMES APPEAR BELOW SEND THEIR WARM CHRISTMAS GREETINGS. THEY CANNOT BE WITH YOU ON CHRISTMAS DAY BUT THEY CAN VISIT YOU THROUGH THE VICTROLA—THEIR "OTHER SELF." THEIR SONG. THEIR ART. THEIR LAUGHTER CAN HELP TO MAKE YOUR DAY HAPPIER AND REMAIN THROUGHOUT THE YEAR TO CHEER AND ENTERTAIN YOU.
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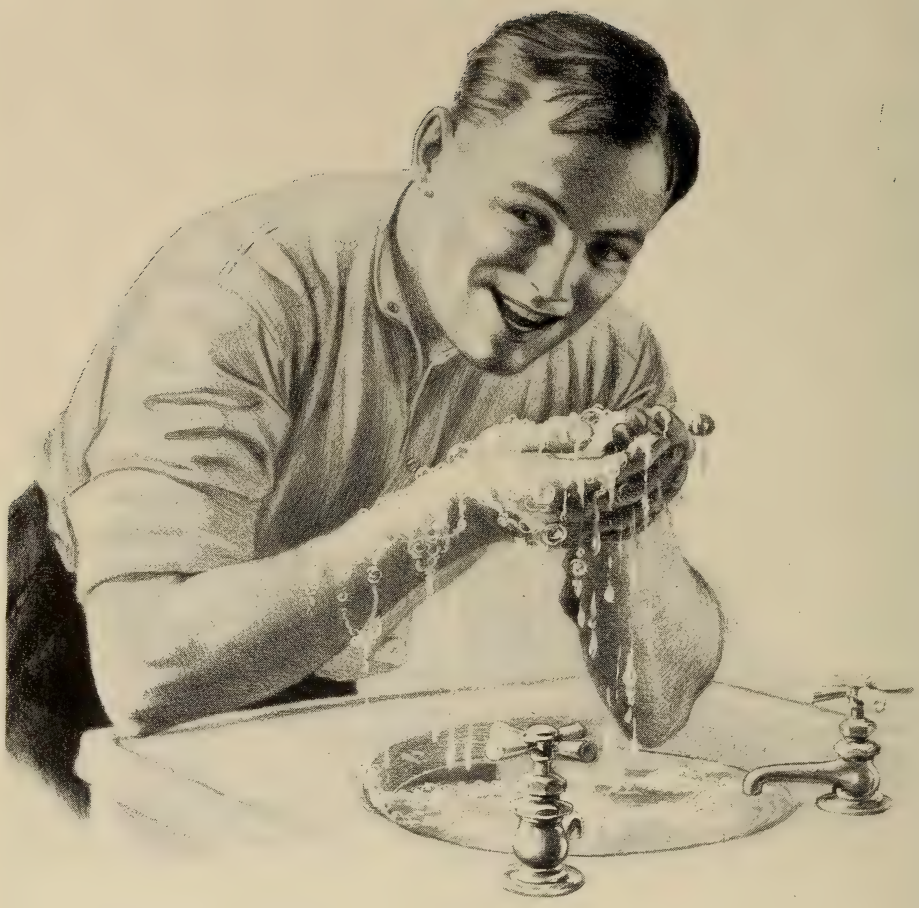

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Keep a cake handy—it meets every need.

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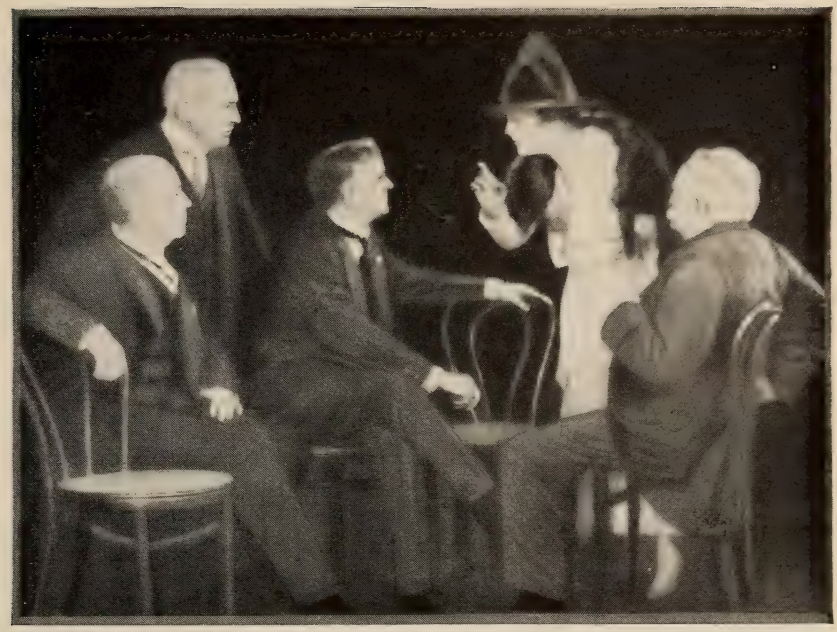
As head of the State Charities Board, Mrs. Livingston brought about reforms that everyone declared, before she was appointed, were visionary.



THE STATE ARCHITECT COL. WARING DR. ELTING, PH. D. MRS. LIVINGSTON CHAIRMAN OF BOARD

We've got to face conditions

"I won't have girls locked up in that old fire trap at Harrisonville!" she stormed.

"Why, it isn't a fire trap. It's a modern brick building with iron stairways inside," was the all-sufficient answer. "We are rather proud of our state reformatory for girls."

But that didn't fool Mrs. Livingston. She knew that the building in one short hour could be a heap of brick and smoldering timbers, and that only automatic sprinklers could safeguard girls behind its barred windows and locked doors.

Today that reformatory has a sprinkler system that is on watch day and night, ready to start working as soon as a fire starts. The fire danger is gone and the girls are safe just because one woman knew the facts and had the humanity to insist on their adoption.

How many officials are fooled by fire protection methods that look all right but are not really safe. The reformatory or the hospital or the schoolhouse may be made of stone, it may have doors opening outward and iron stairways, but the contents will burn up like fuel in a furnace and some inmates perish before help can reach them.

If you are the Mayor of your town you owe it to your fellow citizens to see that such buildings have automatic sprinklers.

If you are the chief of the fire department come out flatfootedly and demand sprinklers, since *you know* they are the most adequate thing.

If you are *merely a father or mother* see to it that your child and your neighbor's child are safe from harm during the six hours daily they spend away from you, by demanding automatic sprinklers in your schools.

Some five billion dollars of business property has been protected from fire by automatic sprinklers.

Meanwhile our wonderful humanitarian institutions and our fine schools continue to burn and the toll of victims grows larger each month.

With a one cent post card you might save lives. Who knows? Should you hesitate to send for a free booklet that tells what to do?

Read—"Fire Tragedies and Their Remedy"

If you feel too indifferent to send for a free booklet telling what to do, what right have you to blame others when a horrible calamity occurs in your town? Think of your schools, hospitals and asylums and write today, now, for this intensely interesting booklet. Address General Fire Extinguisher Company, 293 West Exchange St., Providence, R. I.

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Ask the local ticket agent to help plan your trip—or apply to the nearest Consolidated Ticket Office—or address nearest Travel Bureau, United States Railroad Administration, 646 Transportation Bldg., Chicago; 143 Liberty Street, New York City; 602 Healey Bldg., Atlanta, Ga. Please indicate the places you wish to see en route. "California for the Tourist" and other resort booklets, on request.

DIRECTOR GENERAL OF RAILROADS · 1918 ·

· UNITED · STATES · RAILROAD · ADMINISTRATION ·

KODAK — the gift that helps to make her Christmas merry — then keeps a picture story of the Christmas merriment.

EASTMAN KODAK CO., ROCHESTER, N. Y., *The Kodak City*

PRINCE ALBERT

the national Christmas joy smoke

DOUBLE quick as he kicks out of the coverlids at-peep-of-day on the twenty-fifth, pass him a whack on the back, a peppy "Merry Christmas—and—*the smokesurprise of his life!* —a pound of Prince Albert in that joy'us crystal glass humidor!

Talk about "happy returns!" If you're kind-of-keen to glimpse the sunshine dividends doing the happy-hob-nob with the mistletoe, land on one of these radiant holiday handouts—Prince Albert all fussed up like a gold fish out for a strut in the holly woods!

Never was such Christmas, or all-year, smokejoy as Prince Albert puts across to any man keyed for the pleasure punch of a jimmy pipe or home-rolled cigarettes! Never was such a glad-man-gift! P. A. is not only the sky-limit in smoke-delight-quality, but, get it right, our exclusive patented process cuts out bite and parch! Prince Albert has won by a mile all over the nation—*it will win him!*

Prince Albert is also sold in handsome pound and half pound tin humidors in tidy red tins and in toppy red bags.

R. J. REYNOLDS TOBACCO COMPANY, Winston-Salem, N. C.

Copyright 1919 by
R. J. Reynolds Tobacco Co.

To All Men

Whose Teeth Do Not Stay White

All Statements Approved by High Dental Authorities

The Reason is a Film

Millions of men find that teeth brushed daily still discolor and decay. Tartar forms on them—tobacco stains appear. And with thousands pyorrhea gets a start.

That is evidence that teeth are not kept clean. Your methods are inadequate. You leave a film—that slimy film. It clings to teeth, enters crevices and stays. The tooth brush does not remove it all. The ordinary tooth paste does not dissolve it. So, night and day, it may do a ceaseless damage.

It Wrecks the Teeth

The film is what discolors—not the teeth. It is the basis of tartar. It holds food substance which ferments and forms acid. It holds the acid in contact with the teeth to cause decay.

Millions of germs breed in it. They, with tartar, are the chief cause of pyorrhea. Thus most tooth troubles are now traced to film.

Dental science, after years of searching, has found a film combatant. Dental authorities have proved its efficiency. Now it is embodied in a dentifrice, called Pepsodent, so every one may use it every day. We urge you to ask for a free 10-Day Tube and see what it means to you.

A Pepsin Paste

Pepsodent is based on pepsin, the digestant of albumin. The film is albuminous matter. The object of Pepsodent is to dissolve it, then to constantly combat it.

Pepsin long seemed impossible. It must be activated, and the usual agent is an acid harmful to the teeth. But science has found a harmless activating method. Countless tests have proved this. And that method has made active pepsin possible.

You can see its effects. And, when you know the reason, can judge them for yourself.

Send the coupon for a 10-Day Tube.

Look in 10 days

Let your own teeth decide the right method of cleaning.

Note how clean the teeth feel after using. Mark the absence of the slimy film. See how the teeth whiten as the fixed film disappears.

The question is all important. White, clean, safe teeth are impossible with film. Cut out this coupon—learn the way to end it.

271

Pepsodent PAT. OFF REG. U. S.

The New-Day Dentifrice

After five years of tests under able authorities, it is now advised by leading dentists and sold by druggists everywhere

Ten-Day Tube Free

THE PEPSODENT COMPANY,
Dept. 844, 1104 S. Wabash Ave., Chicago, Ill.:
Mail Ten-Day Tube of Pepsodent to

Name _____

Address _____

A Timely Talk with Santa

Hello! Hello, up there!

Gee! Is this really you? Well, this is Bob.

Yes, I just thought I'd ask you about that Lord Elgin we picked out for Dad, you know.

What's that? You've got it all wrapped up and in the sleigh already? That's bully!

Dad will be tickled to death —he's still lugging around that old turnip he got when he was a boy, and it's about an inch thick—

And say, Santa—how about *me?* There's nothing I'd like half so—

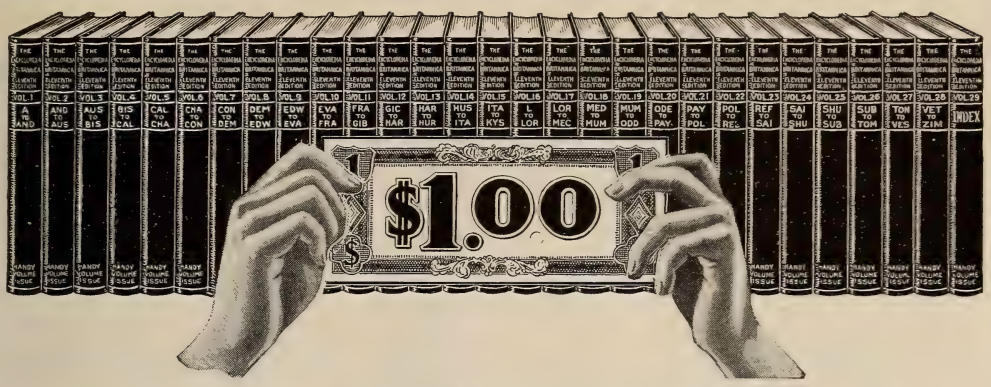
Aw, Betty, *keep* still a minute, cantcha? I just *gotta* tell him this—

Hello? Yes, hello, Santa! Say, you know I'm getting plenty big enough to own a real he-man's watch myself—the fellows wear 'em a lot younger nowadays—

How's that? Got one right in front of you—*a Streamline!* Oh, *boy!*

And the tag says *what*—*"For a Very Good Boy"?* Say! Just *watch* me between now and Christmas!

Elgin Watches



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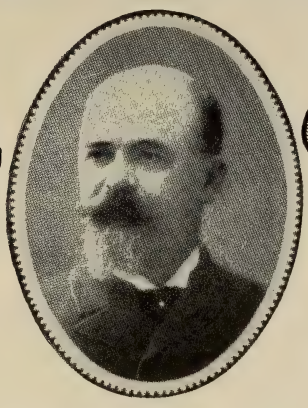


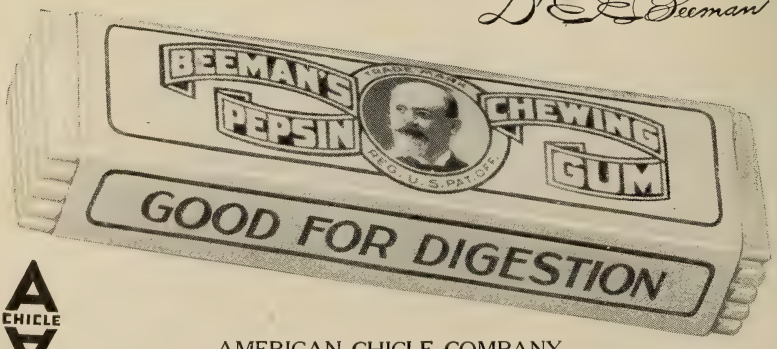
The secret of sound, white teeth is a clean mouth

THE chewing of my Original Pepsin Gum, by exciting the flow of the salivary juices—which are nature's cleansing properties for the teeth—will help to preserve and keep in perfect condition the teeth of men, women, and children.

In the case of children who nowadays eat such a large proportion of soft food, it is absolutely necessary to provide them with some substitute for the harder foods which nature intended should contribute to the strengthening and preservation of the teeth.

Chew my Original Pepsin Gum regularly, ten minutes after meals, and you will undoubtedly notice its beneficial effect on your teeth.

D. E. Beeman



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AMERICAN CHICLE COMPANY

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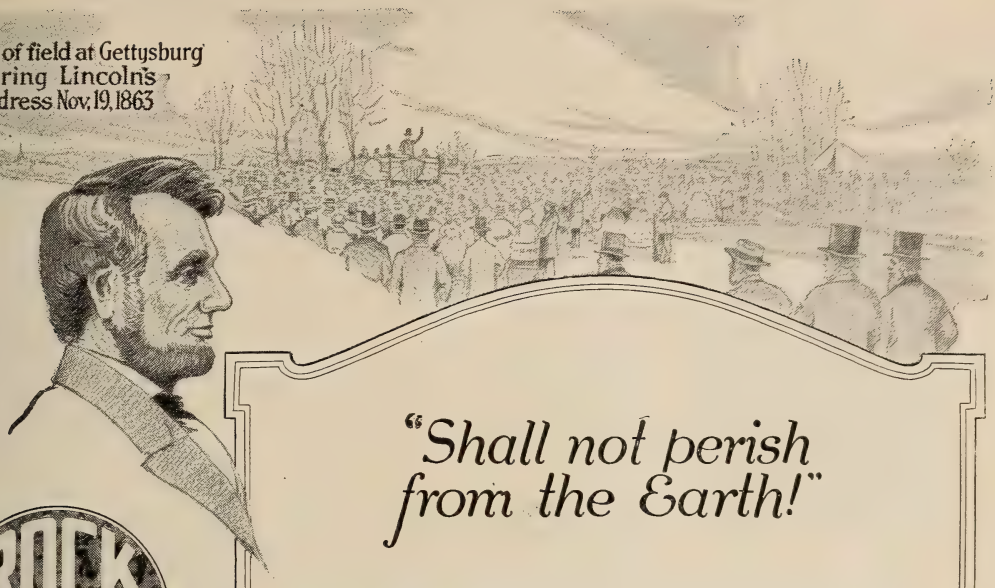

View of field at Gettysburg during Lincoln's Address Nov. 19, 1863

ROCK OF AGES
TRADE MARK

"Shall not perish from the Earth!"

IN these immortal words the greatest American set us the example of an ever-sacred Memorial dedicated to the nation's heroes.

Every community—city, town or village group—wants to prove loyal pride by erecting memorials to those who staked home and future, life itself, that Liberty should not perish from the earth.

And now you too, perhaps, are thinking in terms of memorial. For the time has come again—the heroes of the greatest war in the world's history call on you for remembrance!

Every monument you raise, every memorial you build, will be a reminder and a warning that this nation must so govern itself as to continue in steadfast loyalty to the cause and the men whose valor you commemorate.

"Lest we forget"—let their names and deeds forever stand in the sight of grateful people, a lesson in patriotism, a guide to coming generations.

Let us send a copy of a book on "Rock of Ages." It is free to those contemplating a family or public memorial.

BOUTWELL, MILNE & VARNUM COMPANY
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View in Magnolia Cemetery Charleston, S.C

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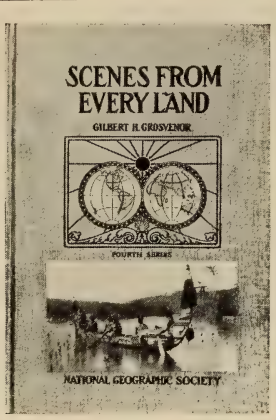

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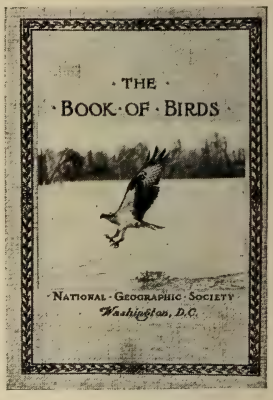

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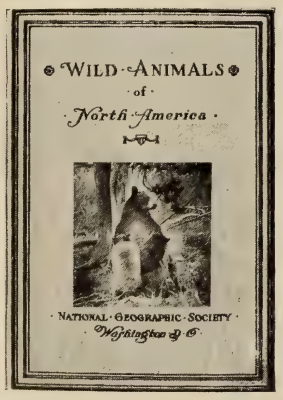

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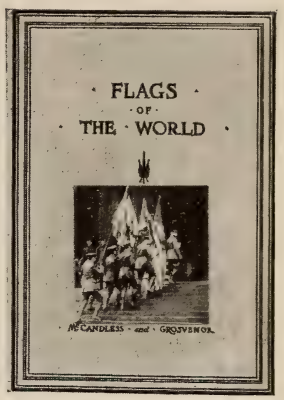

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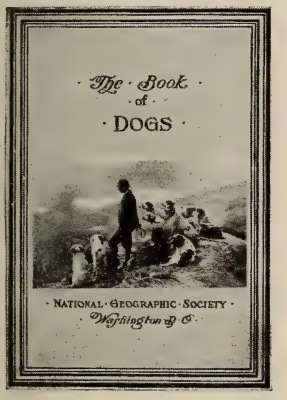

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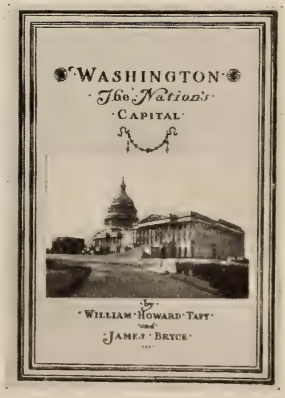

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Know Something About the "Works" in the Watch You Buy

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We have told you that Waltham machinery creates a standard of accuracy unapproached elsewhere in the world. That the "parts" of Waltham movements are distinctive in material, design and advanced process of manufacture. And when these "parts" come to the Waltham Master Assembler, they meet the eye, the skill, the knowledge of a master craftsman thoroughly conversant with the formulas exclusively invented and developed by Waltham genius in watchmaking.

He is the assembler of the Balance and Hairspring (the heart and brain of the watch) which ultimately beats upon your wrist or in your pocket 432,000 pulsations a day, year in and year out. A transferring of energy into motion that is truly wonderful when we seriously think of it.

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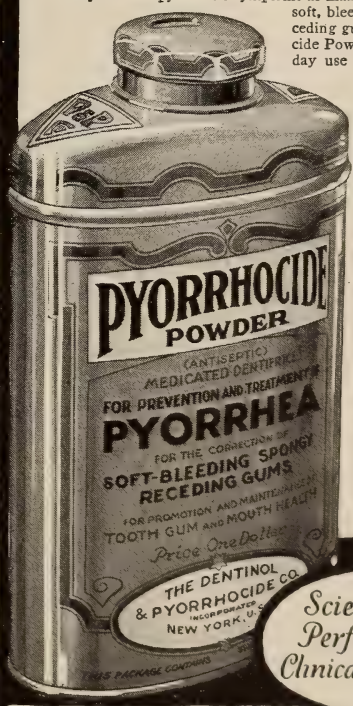
for Pyorrhea prevention

Soft, sensitive gums

that bleed easily, flash a warning. They are the first symptoms of pyorrhea and consequent loss of teeth.

For pyorrhea, dentists use and prescribe Pyorrhocide Powder. It is scientifically compounded for that specific purpose. It is the only dentifrice that has demonstrated its efficiency in dental clinics devoted exclusively to pyorrhea research.

If you have pyorrhetic symptoms as manifested usually in soft, bleeding, spongy, receding gums use Pyorrhocide Powder. Its twice-a-day use makes the gums firm and healthy and it cleans and polishes the teeth.



Pyorrhocide Powder is economical because a dollar package contains six months' supply. Sold by leading druggists and dental supply houses.

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Write for free sample and our booklet on Prevention and Treatment of Pyorrhea.

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L. V. Slaught
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THE HOUR OF PRAYER IN THE SAHARA DESERT

Even in the heart of the desert the pious Moslem stops his journey five times each day, turns toward Mecca and bows in prayer, knowing that from every Mosque in the Mohammedan world at these prescribed hours the *muezzin* is calling the faithful to worship. Photogravure in satin sepia, 7 x 18 inches, ready for framing, 50 cents, postpaid. Framed, $4.00, express collect.

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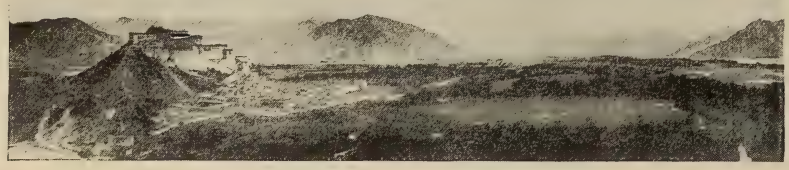

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The most remarkable picture ever taken of the world's strangest capital— the Mecca of the Buddhist Faith—situated in the heart of the Himalayas. The group of structures—palace, monastery and fortress—called the *Potala* and erected on the site of an earlier one, was commenced in 1645, but the city is estimated to be 1200 years old. Photogravure in luxuriant brown tones, 7 x 30 inches, ready for framing, 50 cents, postpaid. Framed, $6.50, express collect.

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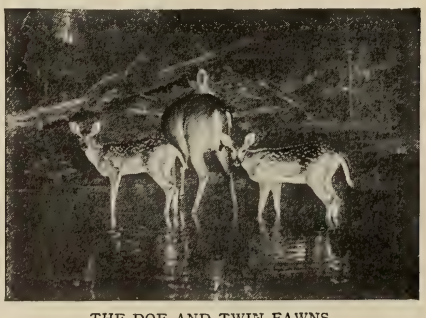

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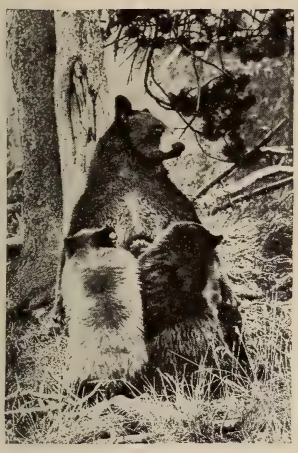

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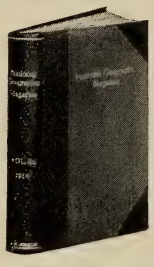

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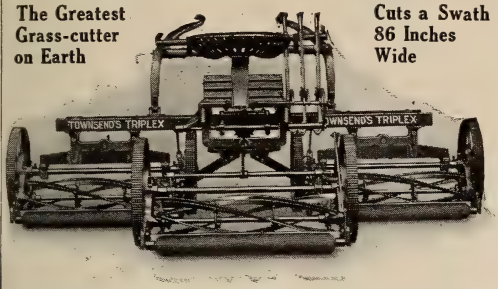

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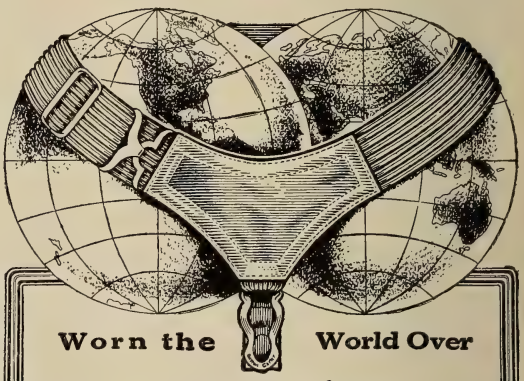

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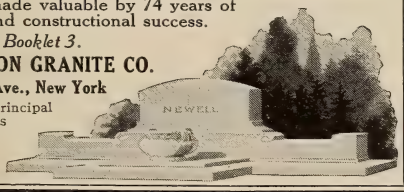

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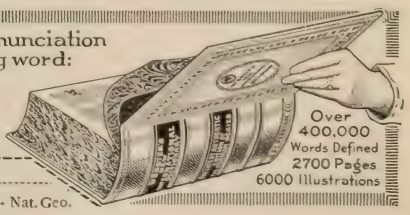

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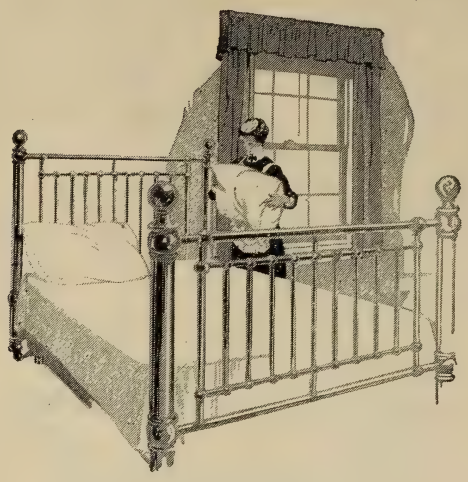

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